5

A SHORT INTRODUCTION TO THE KNOWLEDGE OF THE SCIENCE of BOTANY:

Explaining the

TERMS of ART

Made uſe of in the

LINNÆAN SYSTEM.

Illuſtrated with

FIVE COPPER PLATES

Exhibiting the

CHARACTERS of the GENERA.

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A
SHORT INTRODUCTION
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ALL the ſciences have each their proper language: but Botany alone has almoſt as many different languages as there are different authors, each uſing names and particular phraſes, to repreſent the ſame plants; and ſometimes the ſame denomination is applied by different authors to different plants; but although the Nomenclature of Botany has in all times been varied, yet it never was ſo much altered as of late years. New Views have occaſioned new obſervations, which have enabled the modern Botaniſts to rectify the denominations of the antients.

A denomination is ſo much more perfect, as it contains fewer arbitrary things, and has leſs relation to foreign. This is a kind of definition, which muſt be rendered as exact as poſſible, uſing the viſible attributes and qualities of the plant itſelf, making an abſtraction of the affinity it has to other plants of the ſame genus, or of different genera.

The modern Botaniſts have an advantage over the antients in following this rule; they name the plants from the parts which they contain; whereas the others have generally given them by their outward appearance; the moderns in each of their phraſes, have regard to the eſſential parts of the plant they expreſs: that in a word is the moſt particular character, which can be known by the firſt inſpection, avoiding the long denominations and terms which are ſuperfluous, and only burden the memory to no purpoſe, they have baniſhed the names of the countries where the plants grow, their virtues, and properties, *&c.* from the titles.

When there is but one known ſpecie of a genus, it is not neceſſary to add a ſpecific denominanomination to its generical name, becauſe there is no other ſpecie to diſtinguiſh it from. And it were to be wiſhed, that each plant had but one eſſential character to diſtinguiſh it from all the other ſpecies of the genus: in which caſe each denomination would be compriſed in two or three words. But as it often happens that one ſpecie has many different characters common to one or other ſpecies of the ſame genus, they are then obliged to add a longer denomination to it. However all other things being equal, the ſhorteſt phraſes are always beſt. In conſequence of this, doctor *Linnæus*, the celebrated profeſſor of Botany at *Upſal* in *Sweden*, has propoſed ſimple and proper terms, not only to expreſs all the different parts of plants, but alſo the principal qualities, forms, figures, ſituations, directions, and manners of exiſting of each of theſe parts. He is not ſatisfied to join the definitions and explications to each of theſe terms, to fix and determine their true meaning: but he has alſo added figures to ſuch as were neceſſary to give a more juſt and complete idea of them. Theſe principals have been almoſt univerſally adopted, by thoſe who have wrote after him. This rule he will not permit to be departed from; and his manner of expreſſion is become the living language of Botany.

The ſexual method of claſſing plants, eſtabliſhed by doctor *Linnæus*, is much preferable to all the ſyſtems of Botany which have yet appeared. 1. Becauſe of all thoſe which have been propoſed, there is not one of them which approaches ſo near to a natural method as this, moſt of the claſſes being very natural. 2. It is founded upon the parts of the plants, which are the moſt conſtant, and leaſt ſubject to variation, the ſtamina and pointals, which are the true organs of generation.

Theſe are ſimple and eaſy to retain in memory. The claſſes are eſtabliſhed upon the ſtamina or male organs; the orders or ſubdiviſions of the claſſes upon the pointals or female organs; and the genera upon all the parts of the fructification. All theſe parts being conſidered according to their number, their figure, their proportion, and their ſituation, the ſpecifick differences are taken from the habit or external appearances of the plants. Thoſe who will take the trouble of examining this method, and comparing it with any of the former, will be much better acquainted with its excellence than words can explain it. The author does not pretend to ſay it is perfect;

Pl. I.

Fig. 1.

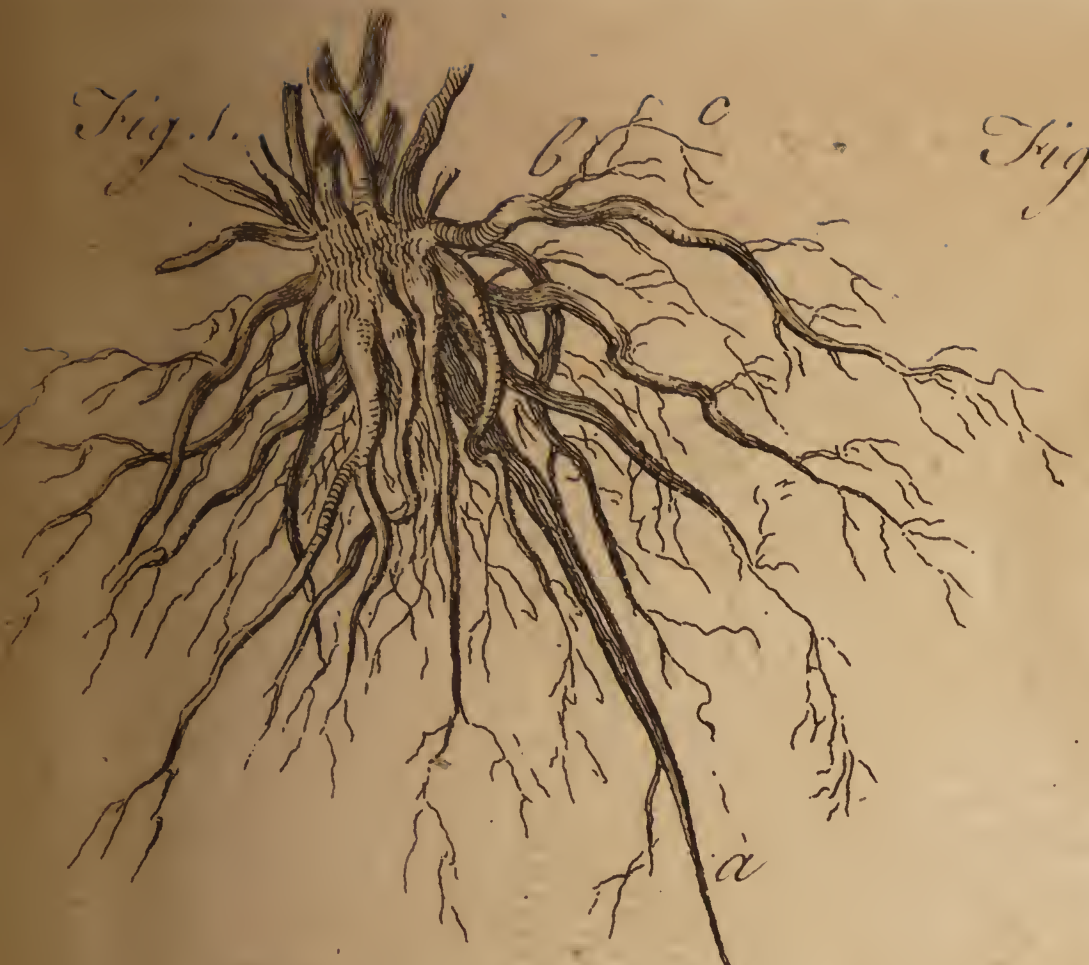
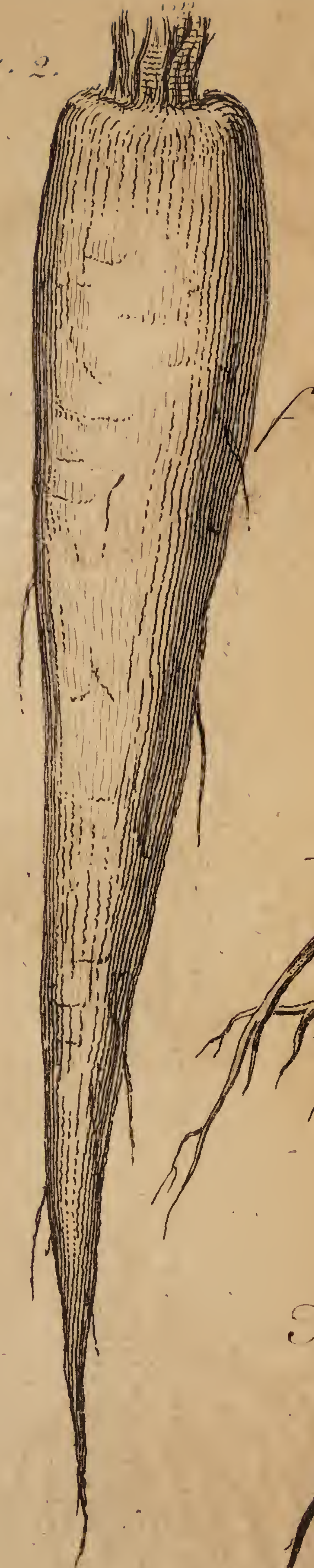


Fig. 2.



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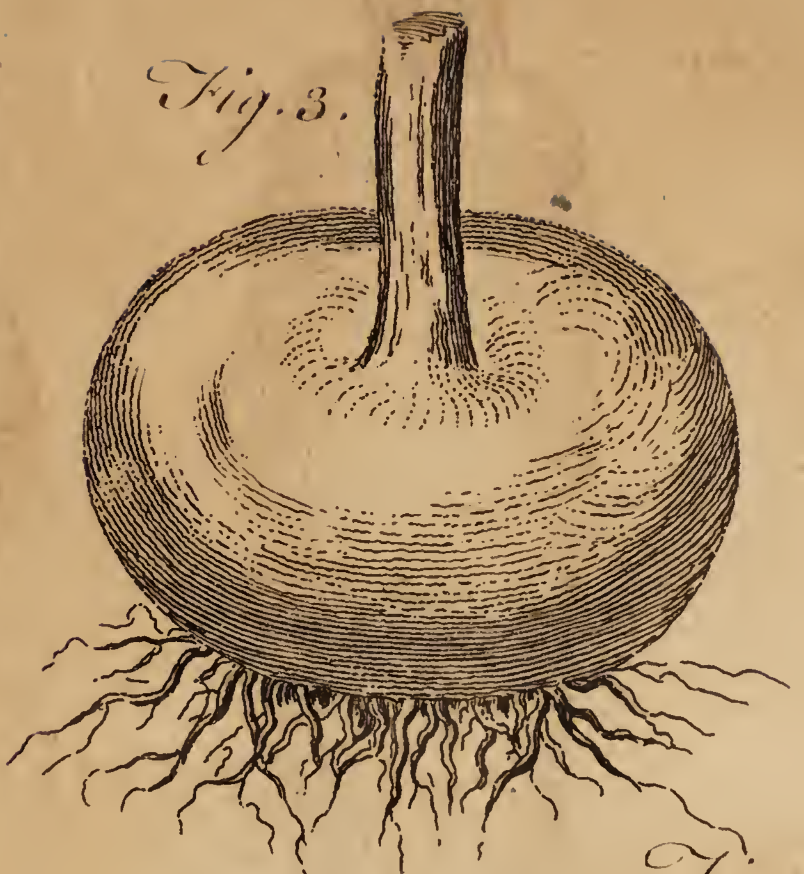


Fig. 4.

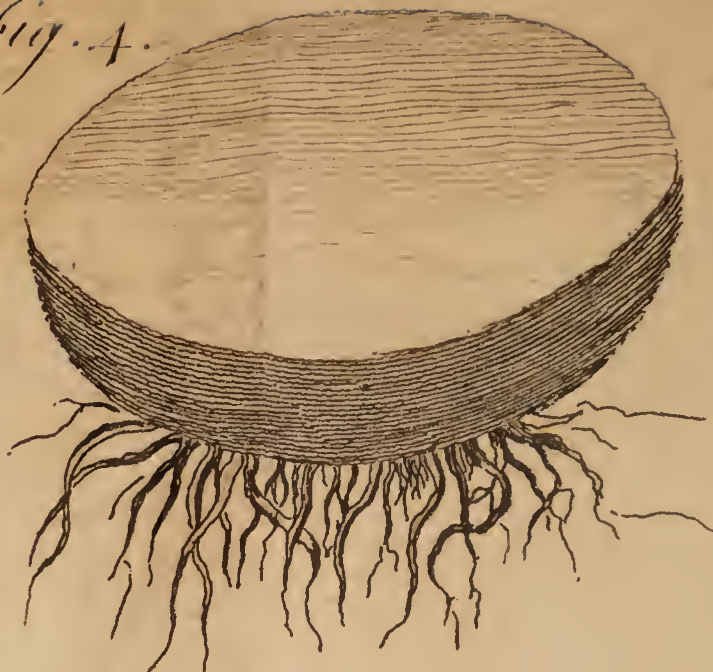


Fig. 5.

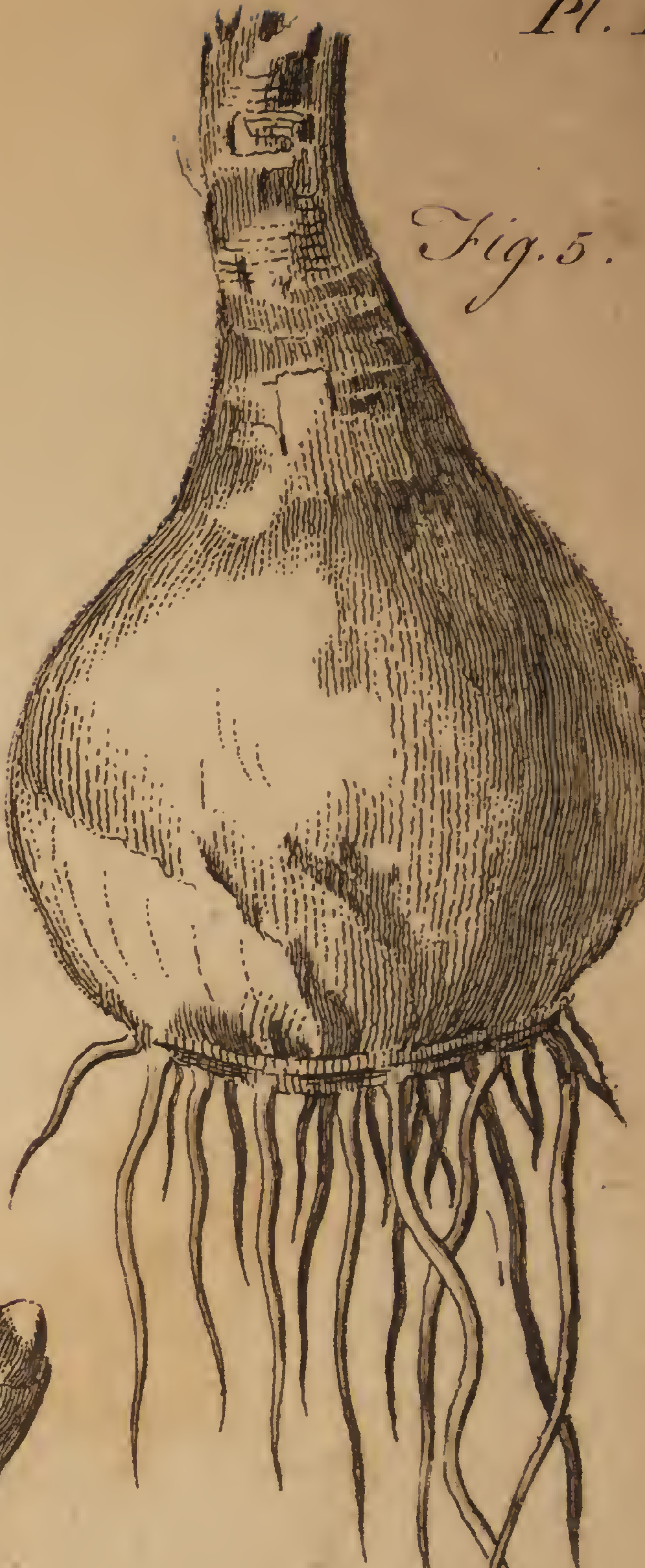
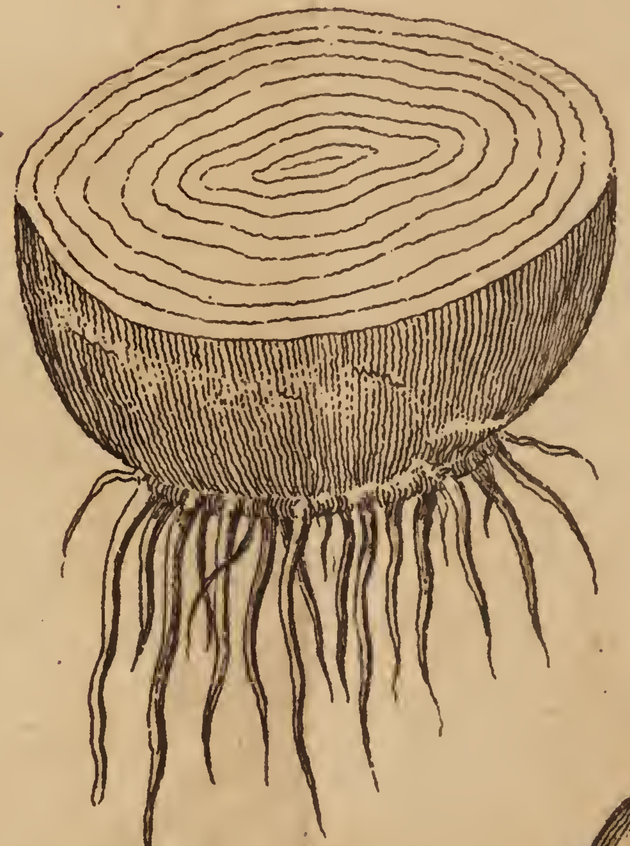


Fig. 6.



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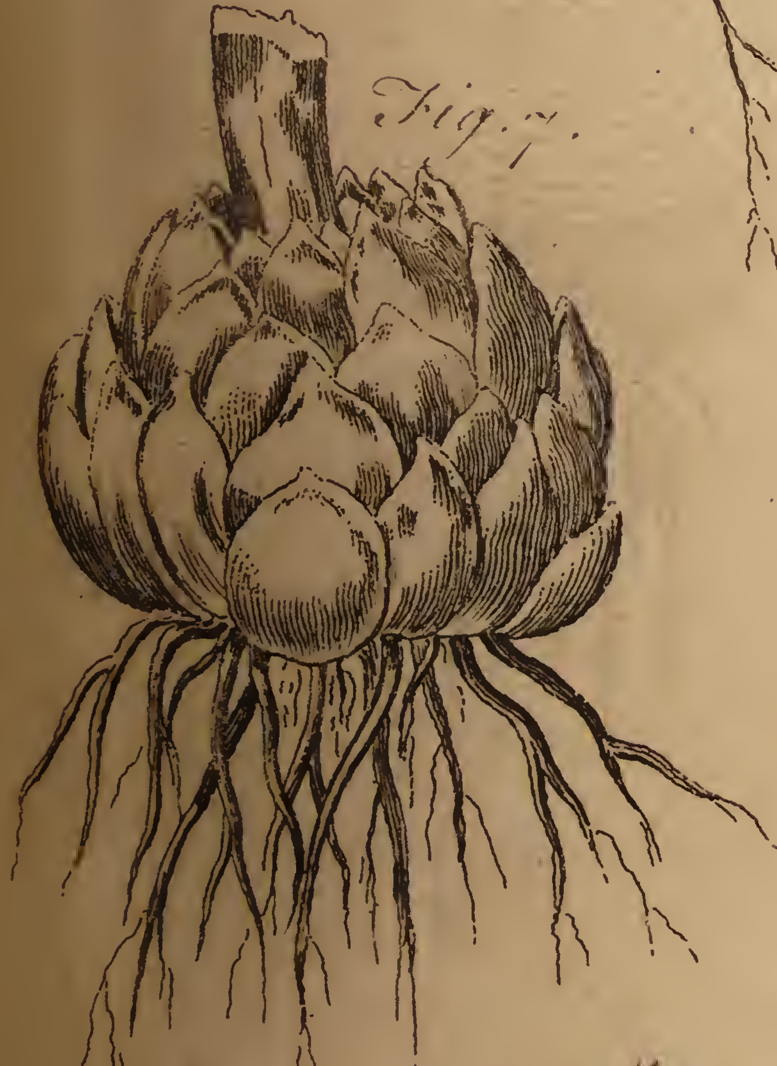


Fig. 8.

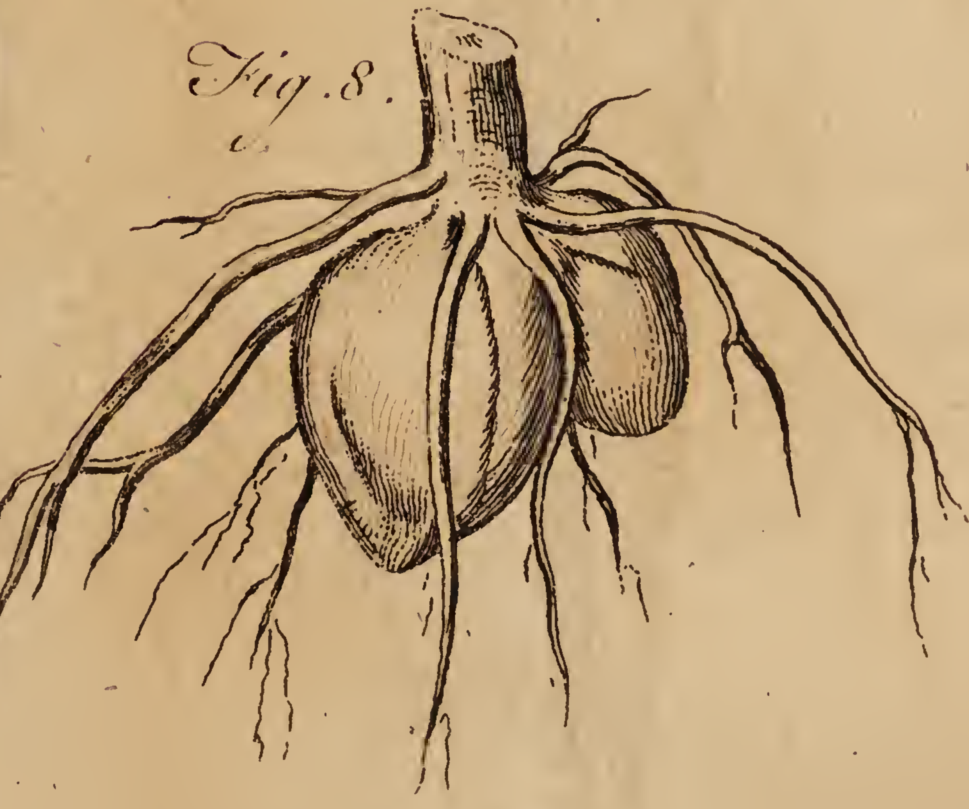


Fig. 9.

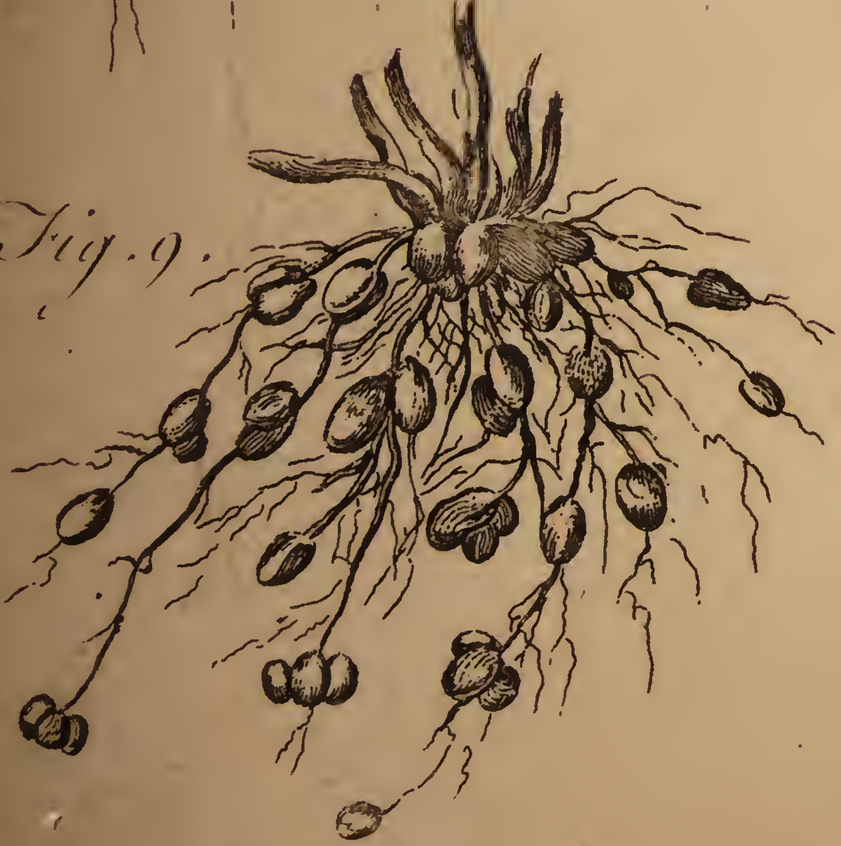


Fig. 10.

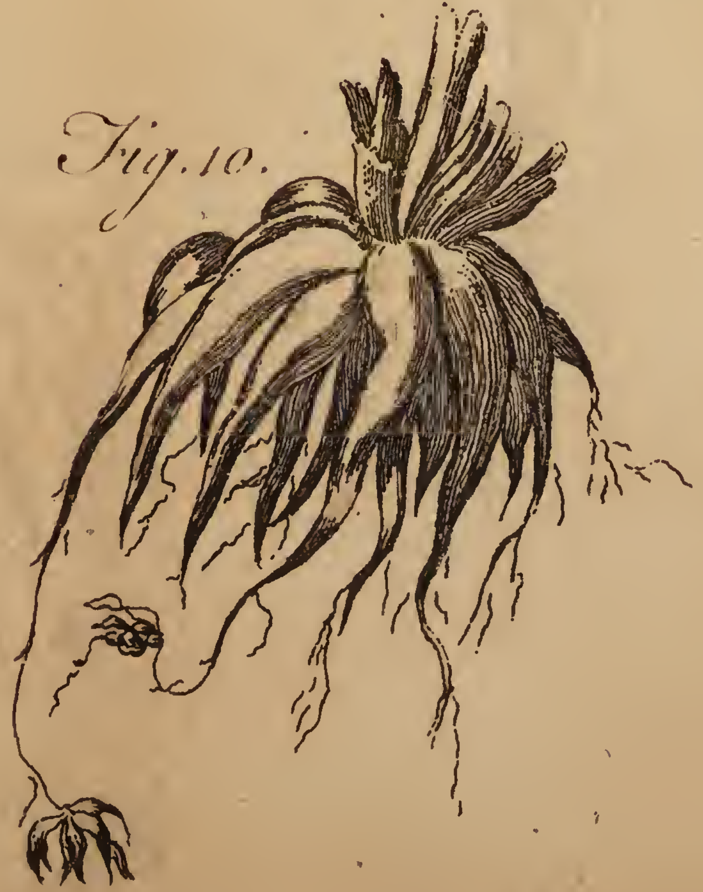
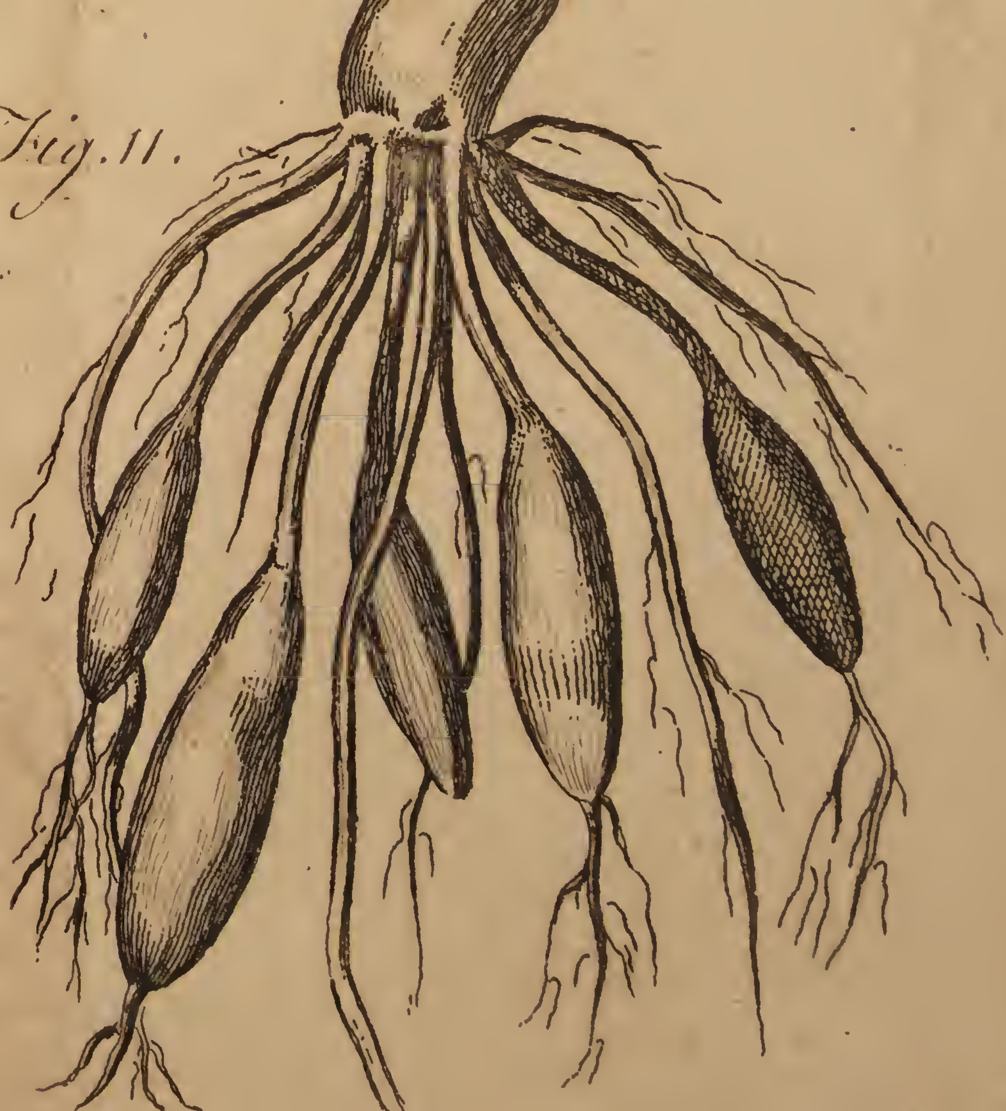


Fig. 11.



fect; the only natural method, if there is one, ſhould have an advantage of this, but in default of the laſt, he endeavours to follow that which approaches neareſt to it.

Doctor *Linnæus* has taken the moſt eſſential parts of the plants, which are thoſe of the fructification, to eſtabliſh the characters of the genera, in a more ſubſtantial manner, than all the authors who have preceded him. The exact deſcriptions which he has given of all theſe parts, and the ſhort natural terms which he has uſed, together with the obſervations which he has added to thoſe of his genera, which carry any eſſential character, or which are liable to exception in any of the ſpecies, are owing to the labour of this worthy botaniſt. It is certain that theſe deſcriptions will have this advantage, that they can be applied to any method which may be hereafter invented, for the eſtabliſhing of new genera, when the old ones are inſufficient, by the junction of thoſe whoſe identy have eſcaped the firſt methodiſts, by the diſmembering of ſome of them, which were over charged with ſpecies, (which fatigue and embarraſs the learner,) in ſhort by clearing of ſome other whoſe characters are equivocal or obſcure. Doctor *Linnæus* has found a way of ranging the ſpecies under their true genera, and of ſeparating thoſe which do not properly belong to them.

The diſtinguiſhing varieties from real ſpecies, is a part of the ſcience of botany not well underſtood; for as variety of ſoils, ſituations, and culture greatly alter the appearance of plants, ſo there are too many who from a fondneſs of ſhewing their great nicety in diſtinguiſhing, are apt to make ſpecies of ſeveral plants, which are only accidental variations; while others, on the contrary, are as ready to ſuppoſe many plants which agree in ſome particular characters, are only accidental variations; and it muſt be confeſſed that the learned author whoſe ſyſtem we here adopt, is of this number; for in all his books where he has enumerated the ſpecies of plants, he has joined by way of ſynonim many plants as varieties of the ſpecies, which are always conſtant in their eſſential characters, when propagated by ſeeds, be the ſoil or ſituation ever ſo different: but this may be readily excuſed, for as he has not had experience enough in the culture of plants, to know how far, culture, difference of ſoils and ſituations will alter the appearances of plants, ſo it cannot be expected he ſhould be perfect in an article, which requires many years trial and obſervation to determine.

The following circumſtances are excluded by doctor *Linnæus*, from having any ſhare in diſtinguiſhing the ſpecies from varieties, *viz. ſex, magnitude, time of flowering, colour, ſcent, taſte, virtues and uſes, duration, multitude, pubeſcens, leaves and monſtrous flowers.* Moſt of which it muſt be confeſſed ſhould not be allowed as diſtinguiſhing characters to ſpecies, but there are ſome which muſt be admitted, where other marks are wanting to diſtinguiſh two ſpecies which have great affinity, provided the characters ſo uſed are permanent: and theſe we find have been frequently uſed by doctor *Linnæus* himſelf in his later works with great propriety, and it may be preſumed as he becomes more knowing in the culture of plants, he will adopt many more.

According to modern botaniſts, plants are ſuppoſed to conſiſt of the ſix following parts, the Root, *Radix*, the Trunk, *Truncus*, the Support, *Fulcra*, the Leaves, *Folia*, the Flowers, *Flores*, and the Fruit, *Fructus*.

The Root, *Radix*,

Is that part of a plant which is faſtened to the ground, or to ſome other body, from whence it draws its nouriſhment.

Roots are divided into three ſorts, *viz.* fibrous, bulbous, and tuberous.

A fibrous root is compoſed of many other ſmall roots, which divide at the ſtalk or trunk, ſee fig. 1. plate 1. Theſe are ſometimes perpendicular, and are called tap roots as at a. f. or horizontal which are called ſpreading roots as at b. Fleſhy, or *Carnoſe*, ſee fig. 2. Hairy, *Filamentoſa*, which appear like ſlender threads or hairs, as at c. fig. 1. ſingle at fig. 2. and branching at fig. 1.

Bulbous roots are of the five following ſorts, 1 Solid, *Solida*, as fig. 3. theſe are of a thick fleſhy ſolid ſubſtance, as is repreſented at fig. 4. which is cut horizontally through the middle. 2 Coated, *Tunicata*, ſee fig. 5. which are compoſed of many lamina, or coats, cloſely ſurrounding each other as is repreſented fig. 6. where it is cut through the middle. 3. Scaled, *Squamoſa*, ſee fig. 7. theſe are compoſed of many fleſhy ſcales lying over each other. 4. Double, *Duplicata*, ſee fig. 8. where there are two ſolid bulbs joined; theſe are alſo called Teſticulated roots. 5. Cluſtered, *Aggregata*, ſee fig. 9. theſe are alſo called Granulous roots, having ſome appearance of grain.

A tuberous root is one that is compoſed of many fleſhy tubers, which ſwell more than the ſtalk, ſee fig. 10. when theſe adhere cloſely to the ſtalk, they are termed *ſeſſilis*, i. e.

ſiting cloſe; or if they are ſuſpended by threads, they are called pendulous, ſee fig. 11. theſe are of different figures.

The Trunk, *Tuncus*,

Is that part of a plant which riſes immediately from the root, and ſuſtains the branches; this denomination is therefore only given to trees; and that of ſtalk to plants.

Stalks are divided into ſimple or compound.

A Simple Stalk *Caulis Simplex*, is one which ariſes ſingle from the root, and continues ſo without interruption to the top. This is alſo called an intire ſtalk, *caulis integer*. When the ſtalk has no leaves or branches, it is called a naked ſtalk, *caulis nudis*. When it is garniſhed with leaves, *caulis foliatus*, a leafy ſtalk. When it is upright, *caule rectus*. Or if it is oblique to the root, *caule obliquus*. When it twines round a ſupport, *caule volubilis*. If it is pliant, *caule flexuoſus*. When it reclines to the ground, *caule reclinatus*. If it lies upon the ground, *caule procumbens*. When it puts roots out of the joints which faſten to the ground, *caule repens*, a creeping ſtalk. When it puts out roots the whole length of the ſtalks, *ſarmentoſus*. If the ſtalks live ſeveral years, they are termed, *perennis*, abiding ſtalks, if but one year, *annuus*, annual. When they are lignous or woody, *fruticoſus*, ſhrubby, or *ſuffruticoſus*, under ſhrubs. If they are cylindrical, *teres*, or taper. When they have two angles, *anceps*, if three angles, *trigonus*, if many angles, *polygonus*. When a ſtalk is ſtreeked, *ſtriatus*. If furrowed, *canaculatus*, channelled. When it is ſmooth, *glaber*. If it is hairy, *villoſus*. If rough, *ſcaber*. And if the hairs are prickly, *hiſpidus*.

A branching Stalk, *Caulis ramoſus*,

Is one that puts out lateral branches as it aſcends. If the branches are irregular and thinly placed, it is called a diffuſed ſtalk, *diffuſus*. If they are large, *brachiatus*, or limbed. When there are a great number of branches *ramoſiſſimus* very branching. If they have ſupports *fulcratus*. When they are prolifick, *proliferous*.

A compound Stalk, *Caulis compoſitus*, is one that ſoon divides into branches; when it is forked, it is called *Dichotomus*, if it has two ranges of branches *diſtrichus*, or when theſe are again divided *ſubdiviſus*. A ſtraw, *culmus*, is a fiſtulous ſtalk garniſhed with leaves, and is generally terminated by a ſpike or panicle, as in graſſes or corn. If this is intire *integer*; or branched *ramoſus*; if uniform *æqualis*, if jointed *articulatus*; or ſcaley *ſquamoſus*, if without leaves *nudus*, or when garniſhed with leaves, *foliatus*.

The ſupports *fulcra*, are certain parts of a plant, which ſerve to ſuſtain or defend the others. Theſe are of the ten following ſorts. The *ſtipula*. The leaf which ſupports the flowers *bractea*. The tendril or claſper *cirrhus* or *capreolus*. The ſpine *ſpina*. The thorn *aculeus*. The footſtalk of the leaf *petiolus*. The footſtalk of the flower or fruit *pedunculus*. The ſtalk *ſcapus*. The gland *glandula*. The ſcale *ſquama*.

The footſtalk which ſuſtains the flower or fruit is called *pedunculus*. If this ſuſtains but one flower or fruit *unicam*. If two *geminam*, if ſeveral *plurimam*, and when it ſupports a great number *numeroſam*. When theſe ariſe from the root *radicalem*, from the ſtalk *caulinam*; from the wings of the ſtalk *alarem*, or from the extremity *terminatricem* or *terminalem*. If they are ſingle *ſolitariam*, or thinly placed *ſparſam*; if in groups *conglobatam*, in cluſters *conglomeratam*, if in panicles *paniculatam*, or in roundiſh bunches *corymboſam*; if in cloſe bunches or bundles *faſciculatam*. When they are in whorles round the ſtalks *verticillatam*, or in ſpikes *ſpicatam*. If in long bunches like grapes *racemoſam*, or in form of an umbrella *umbellatam*, if in form of head *capitatam*.

The ſtalk *ſcapus* is ſo called when it riſe ſingle from the root without branches, an immediately ſupports the flowers and fructification.

The footſtalk of the leaf *petiolus*, is tha which ſuſtains the leaf as the *pedunculus* ſuſtains the flower and fruit, and is ſometime called the tail of the leaf.

The tendril *cirrhus* or *capreolus* is a claſper by which a plant faſtens itſelf to any othe body for ſupport.

The *bractea* or floral leaf, is of a differen form and colour from the other leaves, an is always ſituated near the flower, and neve appears but with it; ſo may be termed a flora leaf.

The *ſtipula* is a ſcale which forms the future bud, and is ſituated at the inſertions o the leaf.

The thorn *aculeus* is a ſharp brittle point which is ſo ſlightly faſtened to the plant, a to be taken off without tearing the othe parts.

The ſpine *ſpina*, is ſo firmly faſtened to the plant, that it cannot be taken off without tearing it.

The gland, *glandula*, is a kind of teat which ſerves for the ſecretion of the humours.

The ſcale, *ſquama*, is generally found in katkins, where they ſerve as a cover to the ſtamina and apices of the male flowers; and in ſome flowers at the bottom of the flower-cup, or under the flowers themſelves, in ſome plants.

Of LEAVES, *Folia.*

I ſhall not here mention all the varieties of leaves, which are taken notice of by ſome of the late writers in Botany, but ſhall only here include their principal or moſt eſſential differences; and ſhall not take the terms from a ſingle difference, but from ſuch as are common to many; for the inſerting too great number of terms will burden the memory too much, which will embarraſs the learner in the application of them; and if thoſe here mentioned are not ſufficient to diſtinguiſh every variety, we ſhould endeavour to keep a juſt medium between the old and new terms, avoiding the two extremes.

When two genera of leaves are combined to form one ſpecies, or the ſpecies is compoſed of two genera, which become the parts of the ſpecies, theſe genera being once eſtabliſhed, it will not be difficult to form the ſpecies, ſo as to require no other definition, provided the genera are well defined, and do not burden the memory; as for example,

Cordato-ovatum.	*Ovato-cordatum.*
Cordato-ovale.	*Ovali-cordatum.*
Cordato-oblongum.	*Oblongo-cordatum.*
Cordato-lanceolatum.	*Lanceolato-cordatum.*
Cordato-ſagittatum.	*Sagittato-cordatum.*
Cordato-haſtatum.	*Haſtato-cordatum.*

There muſt be great care taken in placing the genera either firſt or laſt, in the formation of the ſpecies, for this is not indifferent; the laſt denotes the form in which the leaf reſults, and the firſt in ſome meaſure corrects it, by adding a ſort of exception to it; ſo that by changing their place, it will alter the definition of the leaf. As for example, *Cordato-ovatum*, by this is to be underſtood a leaf more approaching to an oval. But when it is *Ovato-cordatum*, the leaf is ſuppoſed to be more of a heart-ſhape. But this will be better conceived by their figures hereafter referred to.

Leaves are divided into the three following claſſes.

1. Single leaves.
2. Compound leaves.
3. Determinate leaves.

The 1ſt claſs of ſingle leaves. Plate II.

Thoſe leaves are called ſingle, *ſimplicia*, whoſe footſtalks ſupport but one.

There are ſeven ſorts of ſingle leaves, where we conſider a leaf according to its circumferences, *ſinus*, its borders, its ſurface, its ſummit, and its ſubſtance.

The circumference (*circumſcriptio*) of a leaf depends upon its border having no *ſinus* or angle; therefore we ſhould comprehend in this title all thoſe leaves whoſe figures are in form of a ring differently compreſſed, if they have no *ſinus* or angles.

1. We call a leaf orbicular or round (*orbiculatum*) whoſe length and breadth are equal, and whoſe borders are equally diſtant from the center, ſee fig. 1. plate II.

2. A roundiſh leaf (*ſubrotundum*) is one whoſe breadth is greater than the length, ſee fig. 2. but this term is often uſed in a more extenſive ſenſe.

3. An oval leaf (*ovatum*) is in form of an egg, and is longer than it is broad; and when the baſe or lower part forms a ſegment

of a circle, but the upper part draws nearer to a point, ſee fig. 3.

An obverſe oval leaf *(obverſe-ovatum)* is one in form of an egg reverſed, the ſame as fig. 3. when the part which is faſtened to the footſtalk is narrower than the top.

4. An oval or elliptick leaf, is one which is longer than it is broad, and whoſe upper and lower parts have the ſame ſegment of a circle, ſee fig. 4.

An oblong leaf *(oblongum)* is one whoſe length is more than twice the breadth, and the two points are narrower than the ſegment of a circle, ſee fig. 5.

A wedge-ſhaped leaf *(cuneiforme)* is one that is ſhaped like a wedge; the length is much greater than the breadth, and is narrowed from the top to the baſe, ſee fig. 45.

The angles of a leaf (*anguli*) are the prominent parts which project from the border of an entire leaf.

An angle is different from a ſinus, as it is the projecting part of a leaf, ſee fig. 20. *e*, *a*, *e*, whereas the ſinus is the part which is diminiſhed, ſee fig. 20. *a*, *e*, *b*, ſo the angle exiſts in the leaf, and the ſinus is without the leaf. We muſt not confound the ſides with the angle, as is frequently done. The angle in a leaf is conſidered horizontally, fig. 20. *a*, *b*, *c*, and the ſide of a leaf in a perpendicular view, ſee fig. 58. *a*, *b*, *c*.

A Spear-ſhaped leaf, *(lanceolatum)* is ſhaped like the point of a ſpear; it is oblong, and gradually narrowed from the middle to both ends, where it ends in points, ſee fig. 6.

A linear or narrow leaf (*lineare*) is that which commonly is narrowed toward the two ends, but the ſides are parallel its whole length, ſee fig. 7.

An awl-ſhaped leaf *(ſubulatum)* is ſomewhat like the former on its upper ſurface, but the under part is thicker in the middle, growing narrower to a point at the top, like the point of an awl, ſee fig. 8.

A triangular leaf (*triangulare*) is one with three rectangular ſides, and three angles, the two lower being even with the baſe, ſee fig. 12.

A deltoide leaf (*deltoides*) is one with four angles, the two at the top being at a greater diſtance from the center than thoſe of the ſides, ſee fig. 58.

A quinqueangular or five cornered leaf *(quinqueangulare)* is one whoſe ſides are ſtrait to the middle and are not broken, ſee fig. 20. *a*, *b*, this ſometimes happens.

After theſe differences are once eſtabliſhed, it will be eaſy to figure any other varieties which may ariſe from the number of angles, which do rarely happen.

A round leaf *(rotundum)* is one that has no angles or indentures, ſo is different from the preceding, eſpecially the ſeventh and twelfth.

A ſinus divides the diſk of the leaf into many parts, at the baſe, as in fig. 14. and 18. at the top as in fig. 21, 22. at the ſides as in 23, 25. the whole length as in fig. 26.

A kidney-ſhaped leaf (*reniforme)* is that which is ſhaped like a kidney, it is almoſt orbicular, but indented at the baſe without angles, ſee fig. 9.

A heart-ſhaped leaf *(cordatum)* is ſhaped ſomewhat like an egg, but is indented at the baſe without angles, ſee fig. 10.

A moon-ſhaped leaf (*lunatum*) is ſomewhat like a half orbicular leaf, but is deeply indented into two curve angles at the baſe, like a half moon, ſee fig. 11.

An arrow pointed leaf *(ſagittatum)* is a triangular leaf indented at the baſe like the point of an arrow, ſee fig. 13.

A heart arrow-pointed leaf *(Cordato-haſtatum)* is like the former, but the borders are convex, ſee fig. 14.

A pike or javelin-ſhaped leaf (*haſtatum*) is a triangular leaf whoſe ſides and baſe are indented, and the angles are expanded like the point of a halberd, ſee fig. 15.

A bifid leaf (*bifidum*) is a leaf divided at the top in two parts, whoſe inferior borders within the diviſion are ſtrait, ſee fig. 16.

There are ſome leaves which are divided into three parts (*trifidum*) others into four (*quadrifidum*) ſome into five (*quinquefidum*) and others into many (*multifidum*) from the number of theſe diviſions, they are eaſily known.

A trilobate or three-lobed leaf (*trilobum*) is one that is divided into three lobes to the middle, which are ſeparated from each other, and their borders rounded, ſee fig. 17.

When the leaves are divided into two lobes (*bilobum*) or four (*quadrilobum*) or five (*quinquelobum*) ſo from the number of their lobes, they may be eaſily defined.

A palmated-leaf (*palmatum*) is in form of a hand opened, it is divided into ſeveral parts from the top to the middle, or almoſt to the baſe, ſee fig. 22.

A wing-pointed leaf, (*pinnatifidum*) is one which is cut into ſeveral lateral ſinuſes, ſeparated their whole length like the feathers of a wing, ſee fig. 23.

A jagged leaf (*laciniatum*) is one that is cut into many ſinuſes, to the midrib, and the lobes are alſo cut undeterminately on their borders, ſee fig. 24.

A ſinuated leaf (*ſinuatum*) is one that is cut on the borders into ſinuſes the whole length, which are ſeparated by lobes which are but ſlightly intended, ſee fig. 25.

An indented ſinuated leaf (*ſinuato-dentatum*) is the ſame with the former, but the lateral lobes are narrower, ſee fig. 26.

A quinquepartite leaf (*quinquepartitum)* is one that is divided into five parts to the baſe, ſee fig. 28.

In changing the number of parts into which the leaf is divided, we may denote their ſignification, as in two (*bipartitum*) in three (*tripartitum*) in four (*quadripartitum*) and if into many (*multipartitum*).

An entire leaf (*integrum)* is one which has no ſinus on its border, and an undivided leaf (*indiviſum*) is the ſame, but *integrum* muſt be diſtinguiſhed from *integerrimum*; the firſt denotes a leaf which has no ſinus in it's diſk, and the ſecond has none on it's border.

The margin or border of a leaf *(margo)* denotes the variety there is ſeen on the edges of leaves, but theſe have no relation to their diſk, nor are the extremities at the top included in this diſtinction.

An indented leaf *(dentatum)* is one that has its borders end with horizontal points of the ſame conſiſtence with the leaves, but are ſeparate and diſtinct from each other.

A ſawed leaf *(ſerratum)* is one whoſe borders are ſharply indented like the teeth of a ſaw, lying one over the other like tiles, and generally point toward the top, ſee fig. 31. When theſe indentures point toward the baſe, it is termed *retrorſum ſerratum*, *i*, *e*, ſawed backward.

A double ſawed leaf *(duplicato ſerratum)* is one whoſe borders are garniſhed with two ſorts of teeth, one ſmall and the other large, ſee fig. 32. the leſs upon the greater.

A crenated or notched leaf *(crenatum)* is one whoſe borders are cut into angles or indentures, which are contiguous and turn inward, without any bend either to the top or the baſe, ſee fig. 38. When the notches are pointed, it is termed *(acute crenatum)* ſee fig. 35. and when they are rounded *(obtuſe crenatum)* ſee fig. 36. and a double crenated leaf, is one that has ſmall crenatures upon the larger, ſee fig. 33.

A repanded leaf *(repandedum)* is one whoſe border is indented the whole length, and the lobes are each a ſegment of a circle, with obtuſe ſinuſes between them, ſee fig. 46.

A cartilaginous or griſtly leaf *(cartilagineum)* is one whoſe border is diſtinguiſhed from the other part of the leaf by a cartilage or membranous fleſhy ſubſtance, ſee fig. 34.

A ciliated leaf *(ciliatum)* is one whoſe border is ſet round with ſmall parallel hairs, like thoſe of the eye lid, ſee fig. 50.

A lacerated or torn leaf *(lacerum)* is one whoſe border is compoſed of torn ſegments of different ſizes and figures, ſee fig. 24.

A curled leaf *(criſpum)* is one whoſe border is plaited and fringed like a furbelow, ſee fig. 39.

A gnawed leaf *(eroſum)* is one whoſe ſinus and diſk appear as if they were eaten on their borders, ſee fig. 21.

An entire leaf *(integerrimum)* is one whoſe border is quite entire without any kind of indenture, ſee fig. 42.

The ſuperficies of a leaf denotes its ſurface above and below.

A downy leaf *(tomentoſum)* is one whoſe ſurface is covered with hairs ſo ſmall, as not to be diſtinguiſhed by the naked eye, like cotton cloth, ſee fig. 48.

A velvet leaf *(piloſum)* is one whoſe ſurface is garniſhed with hairs which are diſcernable, ſee fig. 47.

A hairy leaf *(hirſutum)* is very near a-kin to the former, but the hairs are longer.

A ſtinging leaf *(hiſpidum)* is one whoſe ſurface is covered with rough brittle hairs, which ſting the fleſh when handled, and are eaſily broken, ſee fig. 49.

A rough leaf *(ſcabrum)* is one whoſe diſk is covered with ſmall inequalities or tubercles.

A briſtly leaf *(aculeatum)* is one whoſe ſurface has many cartilaginous briſtles which eaſily ſeparate from the leaf.

A prickly leaf *(ſpinoſum)* has its diſk or border armed with cartilaginous thorns which adhere cloſely to the leaf, and cannot be ſeparated without injury to the leaf.

A warted leaf *(papilloſum)* is one whoſe ſurface is garniſhed with ſmall protuberances or veſicles, ſee fig. 54.

A poliſhed leaf *(nitidum)* is one whoſe ſurface is ſmooth, and ſhining as if poliſhed.

A plaited leaf *(plicatum)* is one that is plaited from the baſe by a ſort of veſſel or nerve which extends to the border, one being raiſed, and another depreſſed alternately, ſo as that the diſk appears in angles, ſee fig. 37.

A waved leaf *(undulatum)* is that whoſe outer part of the diſk becomes extended beyond a circle of the ſame diameter, in ſuch a manner that the borders riſe and fall like waves, ſee fig. 46.

A wrinkled leaf *(rugoſum)* is one that has deep veins, leaving between them ſpaces, where the ſubſtance of the diſk riſes like fleſh interpoſing, ſee fig. 51.

A veined leaf *(venoſum)* is one that has branching veins or veſſels runing thro' it, or appears to have a great number of orifices of veins joined, ſee fig. 52.

A nervoſe leaf *(nervoſum)* is one that has ſingle veins, extending parallel from the baſe to the top without branching, ſee fig. 53.

A naked leaf *(nudum)* is one that has no marks or veins, ſo is oppoſite to the former.

The point or top of a leaf *(apex)* repreſents the diverſities there are in the upper extremity.

A truncated leaf *(truncatum)* is one whoſe top is terminnated by a tranſverſe line.

A blunt

Fig. 1.

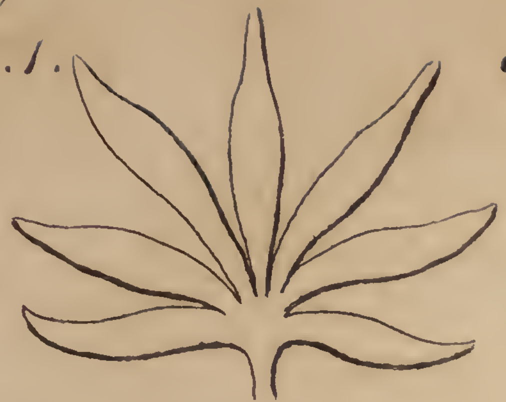


Fig. 2.

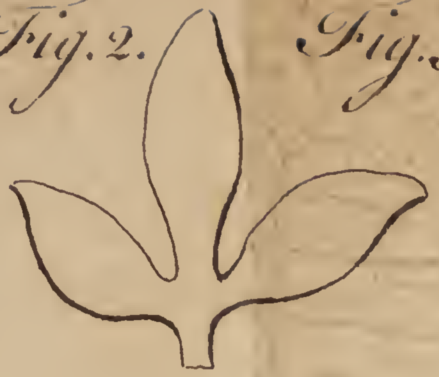


Fig. 3.

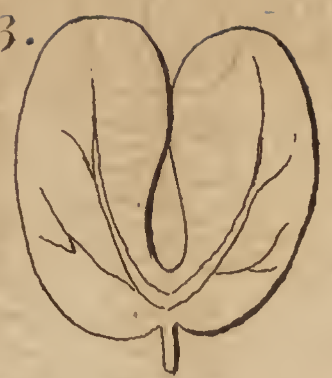


Fig. 4.

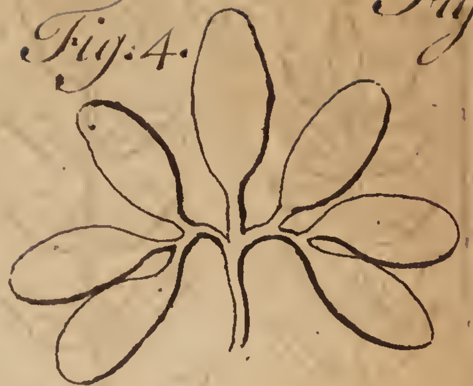


Fig. 5.

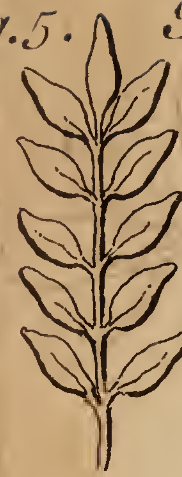


Fig. 6

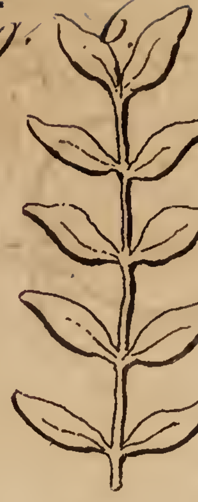


Fig. 7.

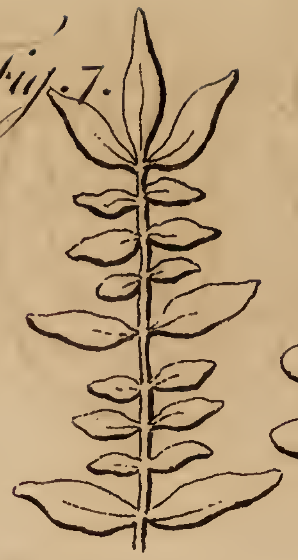


Fig. 8.

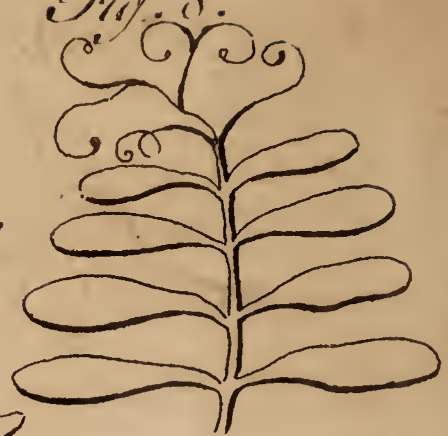


Fig. 9.

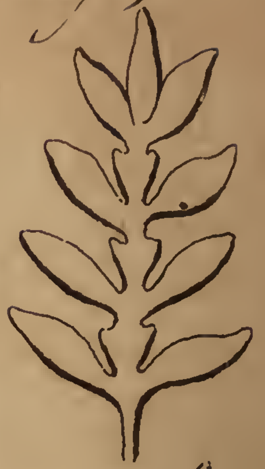


Fig. 1

Fig. 11.

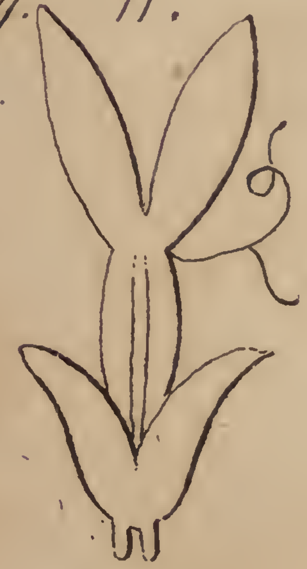


Fig. 12.

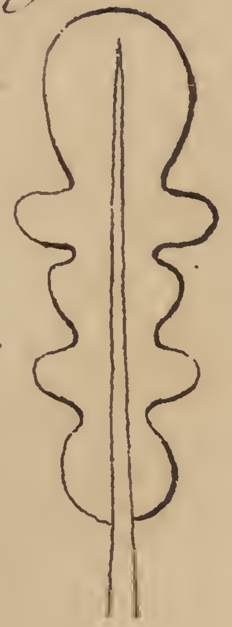


Fig. 13.

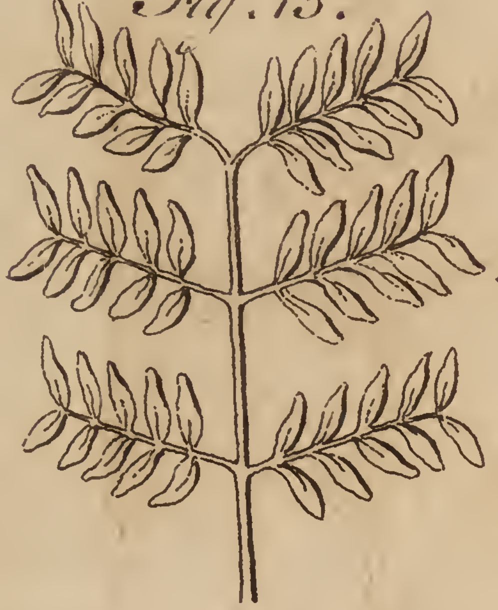


Fig. 15.

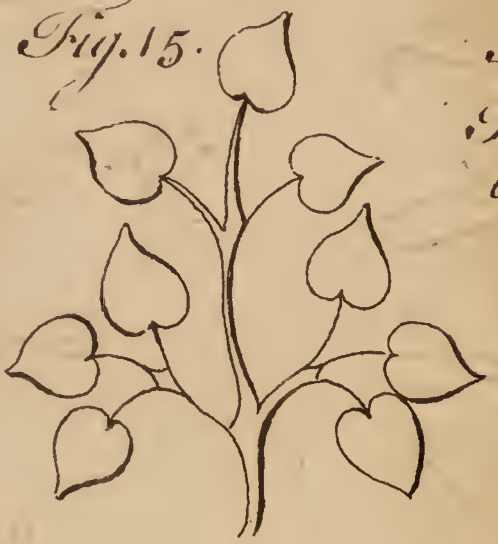
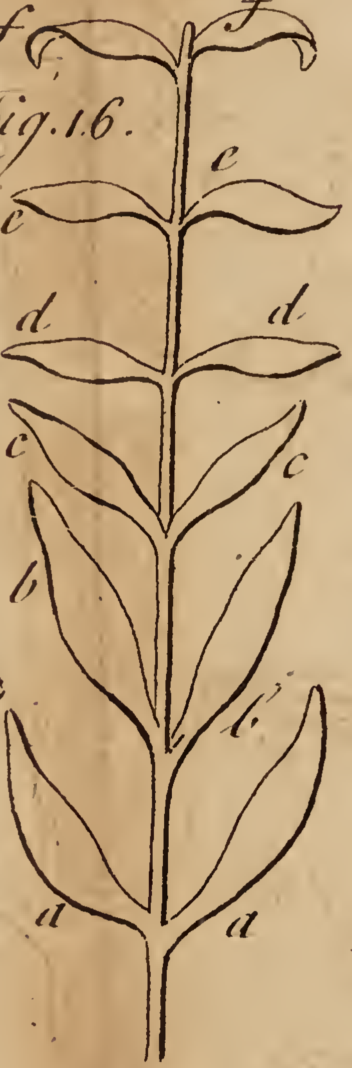
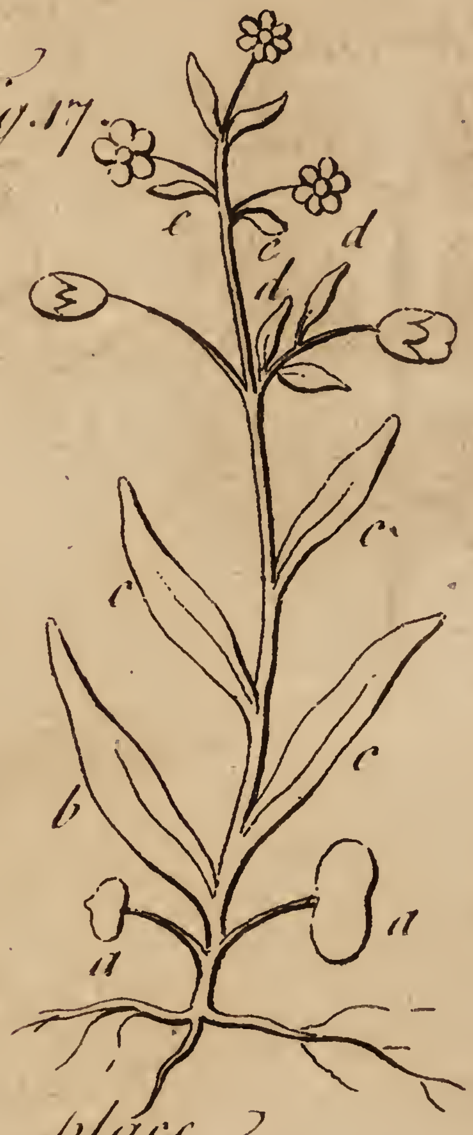


Fig. 16.



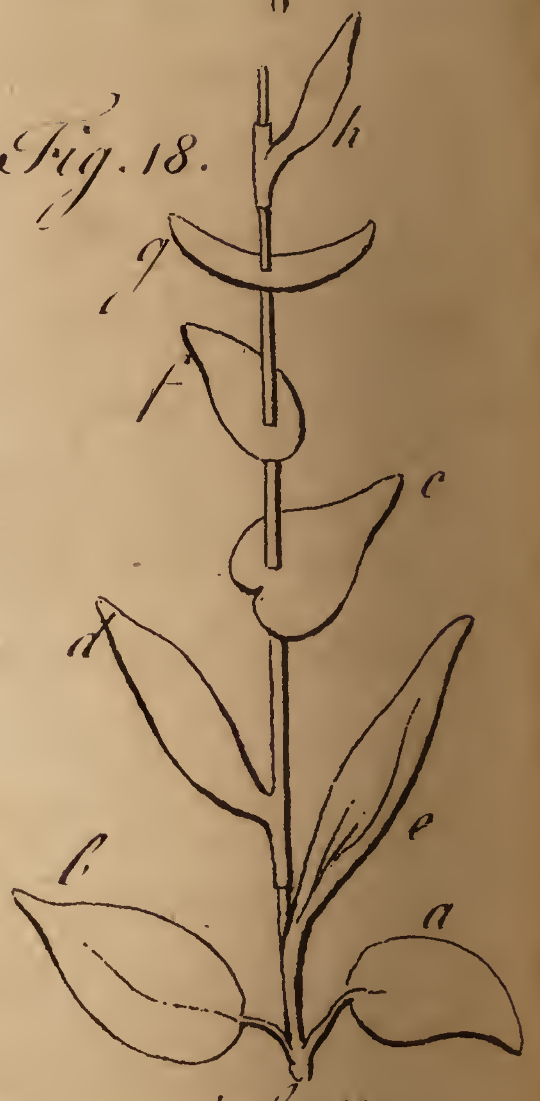
direction

Fig. 17.



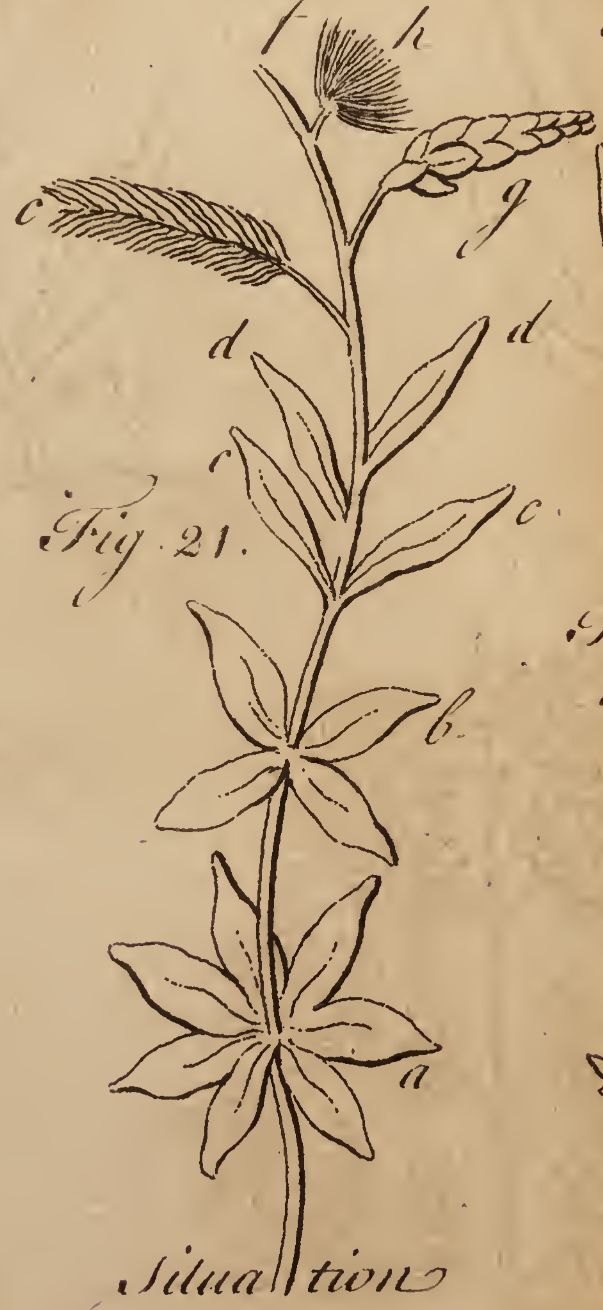
place

Fig. 18.



insertion

Fig. 21.



Situation

Fig. 23.

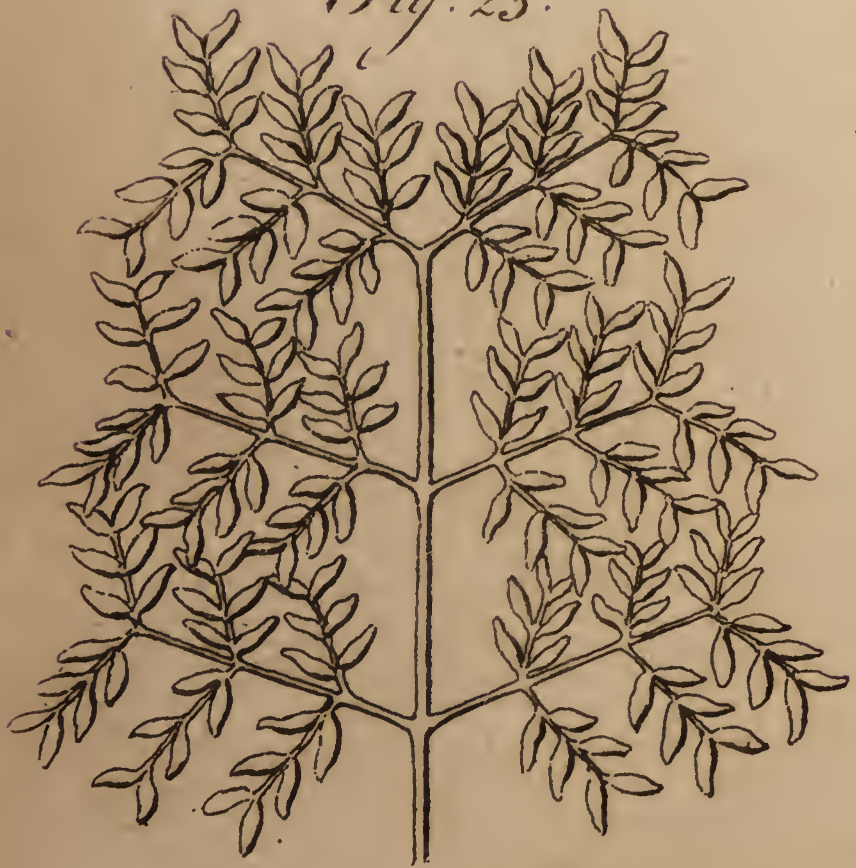


Fig. 20.

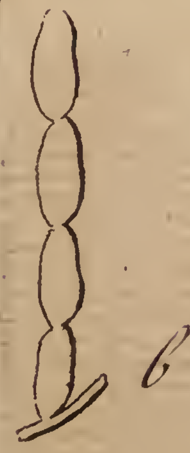


Fig. 24.

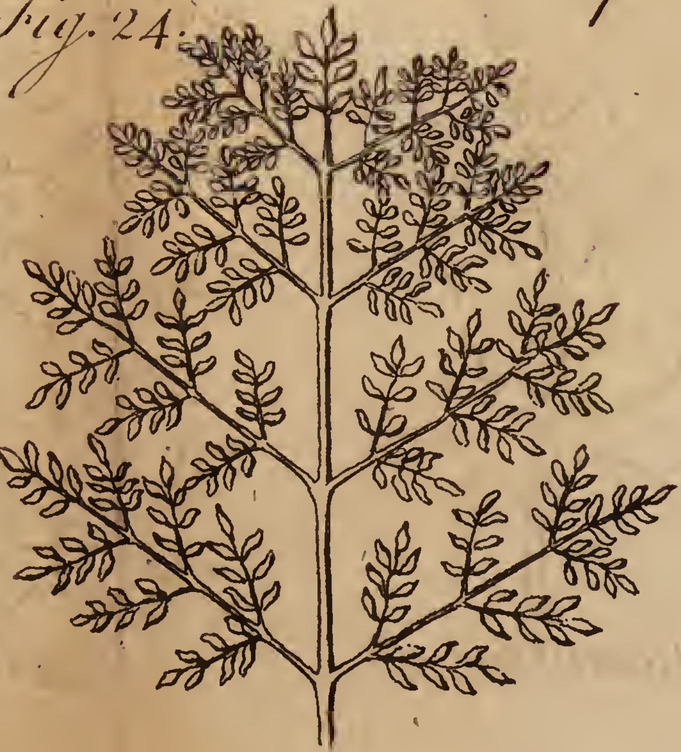


Fig. 19.

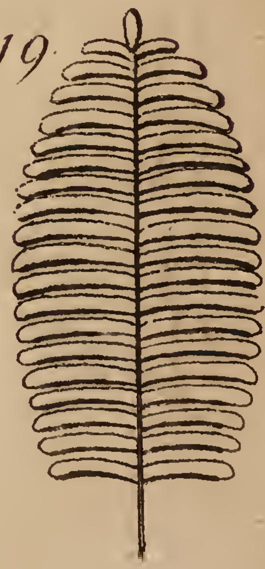
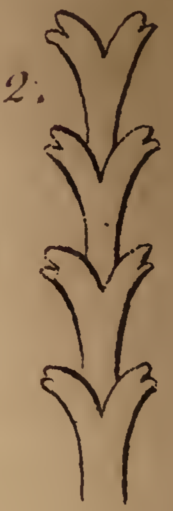


Fig. 22.



A blunt leaf *(retuſum)* is one whoſe top is terminated by a tranſverſe line.

A blunt leaf (*præmorſum*) is one whoſe top is divided by an open pointed ſinus, ſee fig. 18.

A hollowed leaf *(emarginatum)* is one that is ſlopewiſe indented at the top; when it is terminated by blunt ſummits, it is termed *(obtuſe-emarginatum)* ſee fig. 45. and when it is terminated by pointed ſummits *(acute-emarginatum.)*

An obtuſe leaf *(obtuſum)* is one that is terminated by a ſegment of a circle, ſee fig. 40.

A pointed leaf *(acutum)* is terminated by a ſharp point, ſee fig. 41.

An awl-pointed leaf *(acuminatum)* is one whoſe ſummit is terminated like the point of an awl, ſee fig. 42.

A blunt-pointed leaf *(obtuſum cum acumine)* is one whoſe top is blunt and terminated by a ſharp point, ſee fig. 43.

The ſides of a leaf *(latera)* is perceived when all the parts are conſidered in a perpendicular ſituation.

A taper leaf *(teres)* is one that is of a cylindrical form, or ſhaped like a pillar except the ſummit, ſee fig. 62.

A piped leaf, *(tubuloſum)* is one that is hollow, but cannot be perceived unleſs it is cut tranſverſely.

A fleſhy leaf *(carnoſum)* is one that is full of pulp, or fleſhy ſubſtance between the membranes, which form the upper end and lower ſurface.

A membranaceous leaf *(membranaceum)* is one that the membranes do not incloſe any pulp.

A depreſſed leaf *(depreſſum)* is one that appears as if it was preſſed on the ſide which regards the ſtalk.

A compreſſed leaf *(compreſſum)* is one that is impreſſed on the two oppoſite ſides which do not regard the ſtalk.

A flat or plain leaf *(planum)* is when both the ſurfaces are level and parallel every where.

A convex leaf *(convexum)* is a depreſſed leaf raiſed in the middle above the ſides.

A concave leaf *(concavum)* is one that is hollowed in the middle.

A channeled leaf *(canaliculatum)* is one that is channeled or guttered the whole length, ſee fig. 61.

A ſword-ſhaped leaf *(enſiforme)* is one that is compreſſed, and edged like a ſword on both ſides, with a convex middle the whole length.

A ſabre-ſhaped leaf *(acinaciforme)* is a compreſſed fleſhy leaf like the point of a ſpear, with one edge convex and narrow, the other broader and raiſed, and the inner blunt and ſtraiter, ſee fig. 56.

A hatchet-ſhaped leaf *(dolabriforme)* is a compreſſed ſuborbicular leaf like a plainer; it is blunt, projecting or ſwelling outwardly with a ſharp edge, and almoſt cylindrical toward the lower part, ſee fig. 57.

A tongue-ſhaped leaf *(linguiforme)* is a depreſſed linear fleſhy leaf, a little convex on the upper ſide, and has generally cartilaginous borders, ſee fig. 55.

A three ſided leaf *(triquetrum)* is one that has three flat longitudinal ſides, but is generally awl-pointed.

A three cornered leaf *(trigonum)* is like the former, but the faces are channeled and the projections are membranous.

Of COMPOUND LEAVES, Plate III.

Compound leaves are divided into ſimple and decompound.

A compound leaf is compoſed of ſeveral ſmall leaves united together upon the ſame common footſtalk, which is but one compound leaf.

A leaf is called *(folium)* but when it is compoſed of many ſmall leaves, it is called *(foliolum)* theſe form a compound leaf.

A compound leaf when properly underſtood, is one which is produced from a ſingle compoſition.

A fingered or handed leaf *(digitatum)* is one compoſed of ſeveral ſmall leaves ſitting on the top of a common footſtalk, but in a ſtrict ſenſe it ſhould be compoſed of more than four ſmall leaves, ſee fig. 1.

A trifoliate leaf *(ternatum)* is one compoſed of three ſmall leaves ſtanding upon one common footſtalk, ſee fig. 2. when theſe have no proper footſtalk, it is termed *(foliolis ſeſſilibus)* but when each has a proper footſtalk *(foliolis petiolatis.)*

When a leaf is compoſed of two lobes *(binatum)* theſe ſit upon a common footſtalk, ſee fig. 3.

When it has many ſmall leaves branching upon a common footſtalk, it is called a branching leaf *(ramuloſum)* ſee fig. 4.

A winged leaf *(pinnatum)* is compoſed of many ſmall leaves, ranged along on each ſide the common footſtalk like wings; but as theſe are ranged in different manners, ſo they have different appellations, *viz.*

When it is terminated by a ſingle lobe or little leaf, it is an unequal winged leaf, *(imparipinnatum)* ſee fig. 5. when it is not terminated by a ſmall leaf or tendril, it is called an abrupt winged leaf *(abruptum)*, ſee fig. 6.

When the ſmall leaves are placed oppoſite on the footſtalk, as in fig. 6. it is called an oppoſite winged leaf; but when they are placed alternately, it is called an alternate winged leaf.

When the ſmall leaves are alternately unequal, as in fig. 7. it is called an interrupt winged leaf.

If it has claſpers or tendrils by which it faſtens to any other body or ſupport, it is called a *(cirrhous)* winged leaf, ſee fig. 8.

When the ſmall leaves have borders runing along the footſtalk from one to the other, as in fig. 9. it is called a runing winged leaf *(decurrentibus)*.

When the footſtalks have a jointed membrane between the ſmall leaves, as in fig. 10. they are termed membranaceous footſtalks.

When the leaf is compoſed of one pair of little leaves placed oppoſite, as in fig. 11. it is called a conjugated leaf.

A lyre ſhaped leaf *(lyratum)* is one leaf whoſe lower part is cut in ſuch manner, as if the ſegments at the baſe were ſeparated from the body of the leaf, and detached from thoſe on the top, ſee fig. 12.

A double winged leaf (*duplicato-pinnatum*) or (*pinnato-pinnatum*) is a leaf compoſed of leaves, which were compoſed before of wings, ſee fig. 13.

A decompoſite leaf *(decompoſita)* is that whoſe common footſtalk divides twice before it is garniſhed with leaves, as in fig. 23, and 24. this is alſo called a doubly winged leaf, (*duplicato-pinnatum*).

A ſupradecompoſite leaf is one whoſe common footſtalk divides ſeveral times before it is garniſhed with ſmall leaves, ſee fig. 19 and 22.

A double trifoliate leaf, *(duplicato-ternatum)* is one which is compoſed of two orders of trefoil leaves, and when the common footſtalk is divided into three, each ſuſtaining three leaves, it is called a triplicate trefoil leaf *(triplicato-ternatum)* ſee fig. 15.

Of the determination of leaves.

The determination of leaves conſiſts in this difference, *viz.* that a leaf is diſtinguiſhed without any regard to it's ſtructure or form; this is divided into four orders, which conſiſt in the direction, the place, the inſertion, and the ſituation.

I. The direction, ſee fig. 16. is the expanſion which the leaf acquires from the bottom to the top. If it is arched (*inflexum*), that is, when it returns toward the footſtalk as at *a*, *a*; when it is upright (*erectum*), that is if it makes an acute angle with the footſtalk, ſee *b*, *b*. If it ſpreads open, or ſtands almoſt in a right angle with the perpendicular *c*, *c*, it is called (*patens*); when it is horizontal, that is, when its makes a right angle with the perpendicular, as at *d*, *d*, (*horizontale*); when the leaf is reclinated, or the ſummit is turned ſo that it is lower than the baſe (*reclinatum*), as at *e*, *e*; when it is turned back or rolled as at *f*, *f*, (*revolutum*), or a revolved leaf.

When a leaf puts out a radicle from its top, as ſome of the ferns do, it is called *radicans*; if it puts out roots from its under ſurface, *radicatum*, and if they float on the waters, *natans*.

II. The place, ſee fig. 17. this is determined by the place where it is faſtened to the plant, the ſeed leaf (*ſeminale*) *a*, *a*, is that which is firſt put out from the ſeed, and is often called *Cotyledon*.

A radicle leaf *(radicale)* is one which riſes from the root, and is not faſtened to the ſtalk, *b*, thoſe leaves which are faſtened to the ſtalk (*caulinum*) *c*, *c*, *c*, thoſe which ſit on the branches (*ramoſum*) *d*, *d*, thoſe which are under the ramifications or wings of the ſtalk, *(ſubulare)* *e*, *e*, and the floral leaf *(florale)* is always ſituated near the flower.

III. The inſertion is the manner in which a leaf is faſtened to the plant, ſee fig. 18.

A Buckler or ſhield ſhaped leaf (*peltatum*) is one whoſe footſtalk is faſtened to its diſk, and not to the baſe or border *a*.

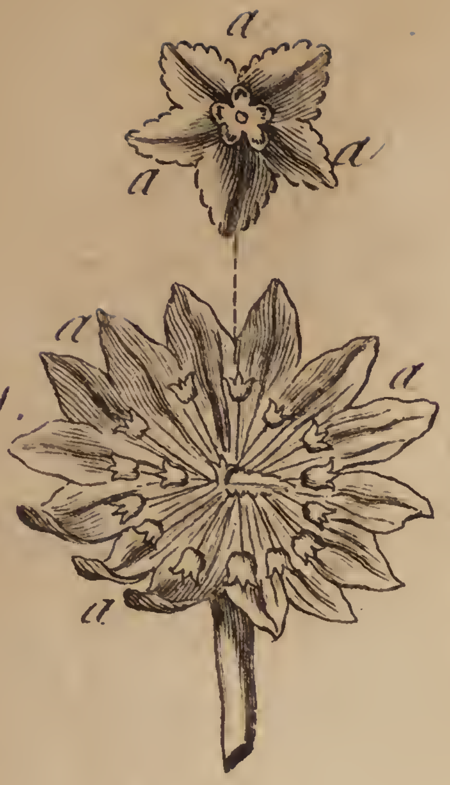
When the leaf has a footſtalk at its baſe by which it is faſtened to the plant as at *b*, it is called *petiolatum*.

If it is faſtened to the branch without a footſtalk as at *c*, (*ſeſſile*) ſitting cloſe.

When the baſe of the leaf is faſtened by a membrane runing along the ſtalk as at *d*, *decurrens*. When the baſe of the leaf extends ſo as to embrace the ſtalk quite round as at *e*, *amplexicaule*.

But when the lobes of the baſe are too ſhort for to wholly embrace the ſtalk, it is termed *ſemiamplexicaule*, half embracing.

A perfoliate leaf *(perfoliatum)* is one whoſe diſk ſurrounds the ſtalk, the branch, or the footſtalk



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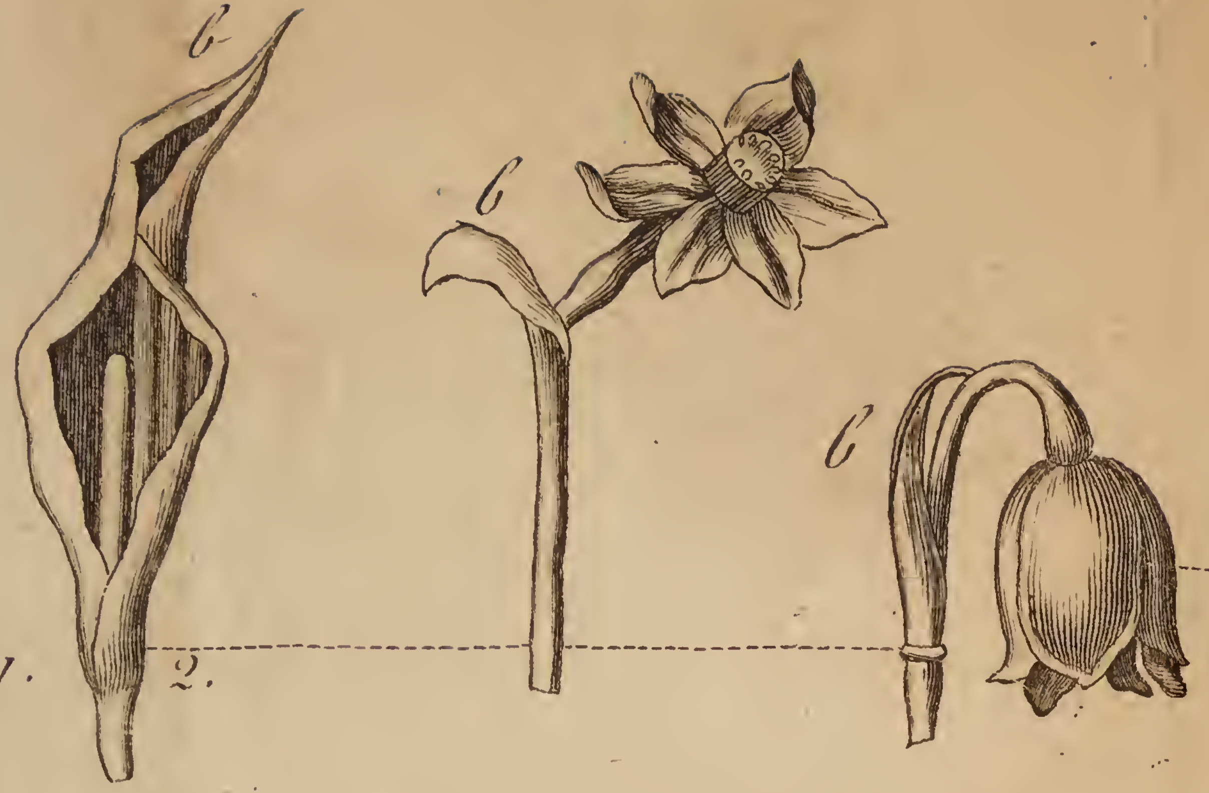

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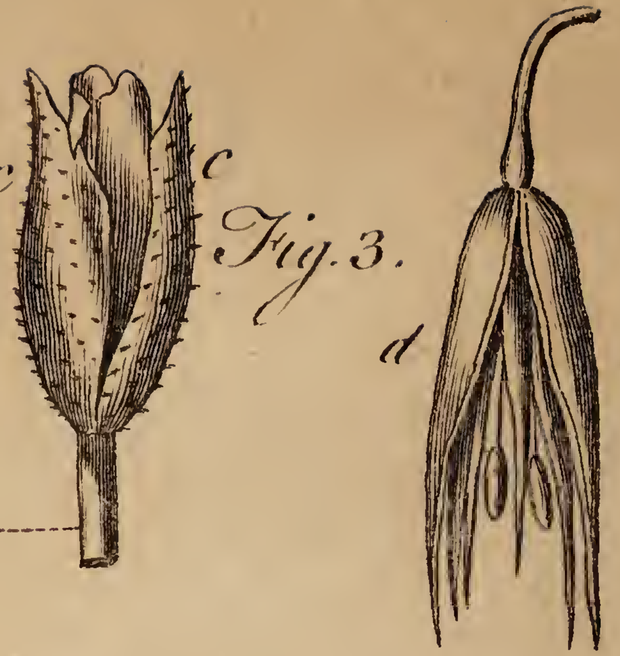

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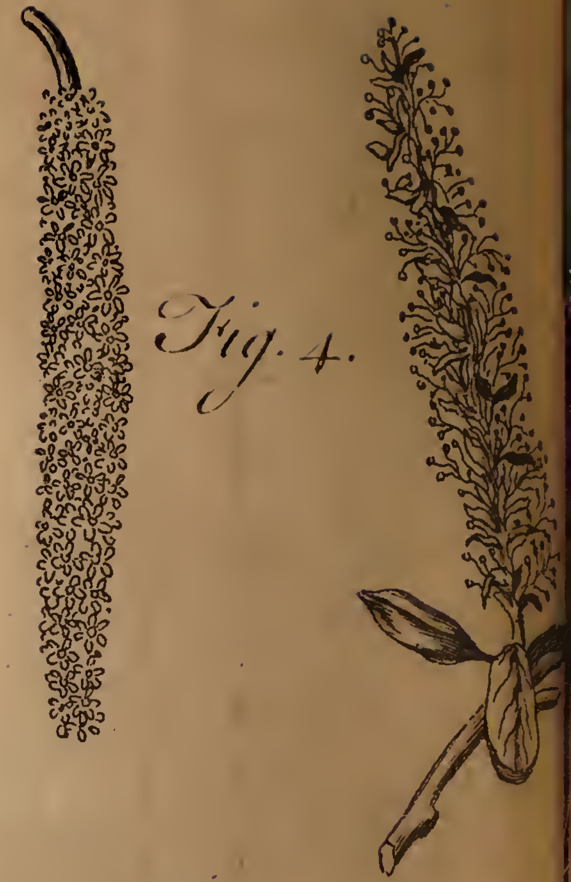

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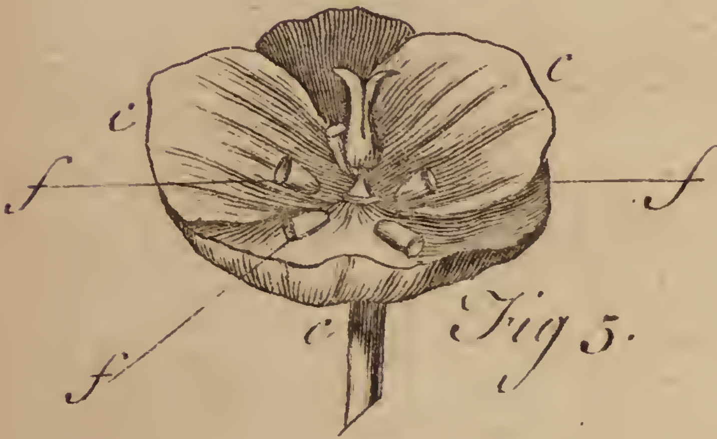

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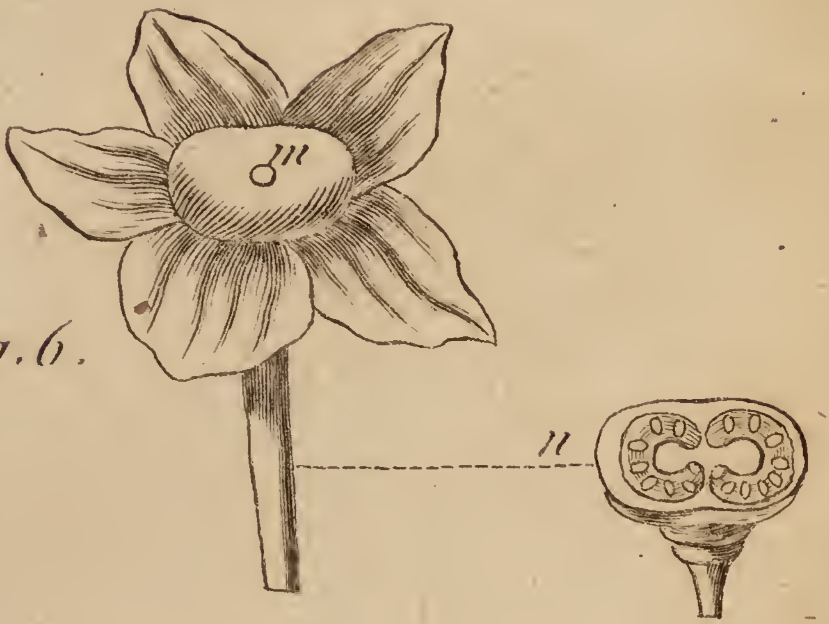

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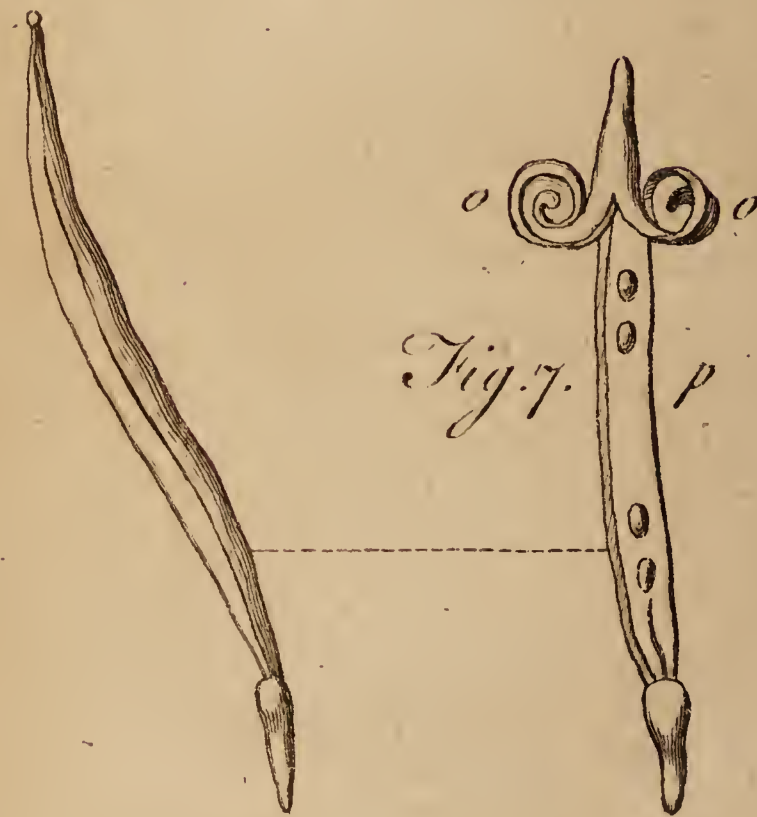

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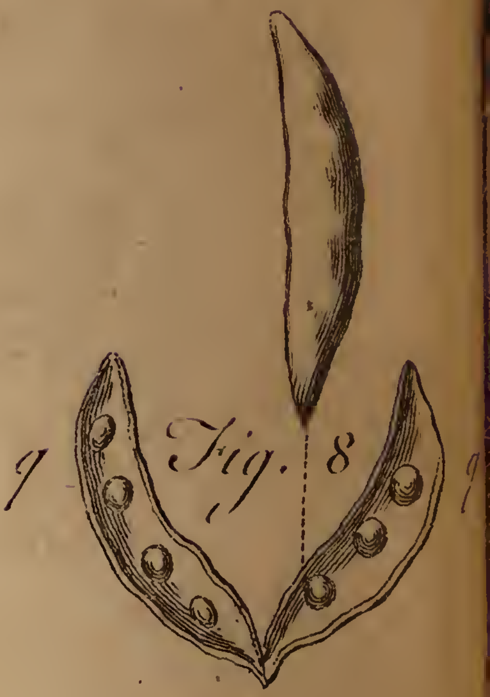
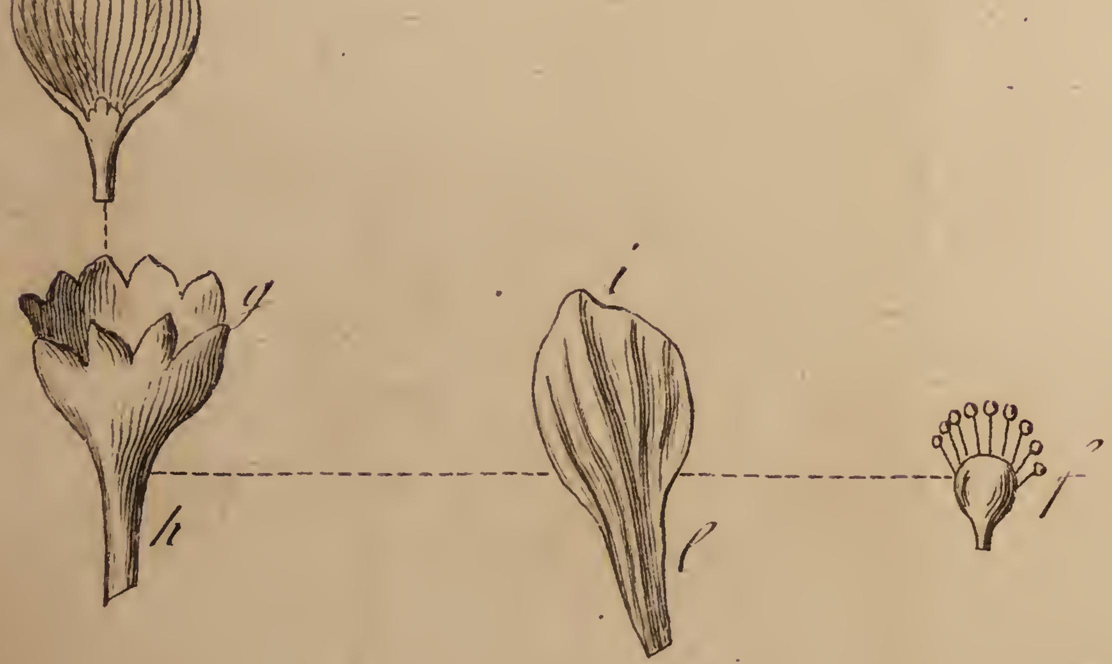
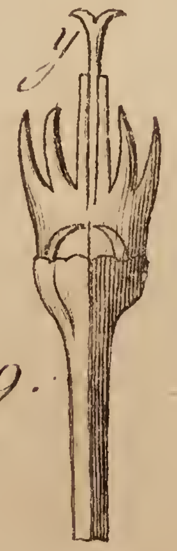


Fig. 8





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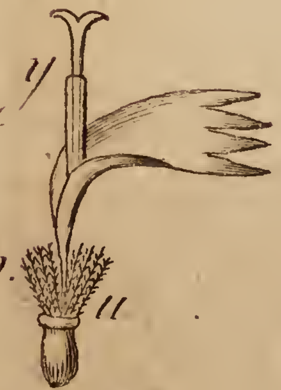

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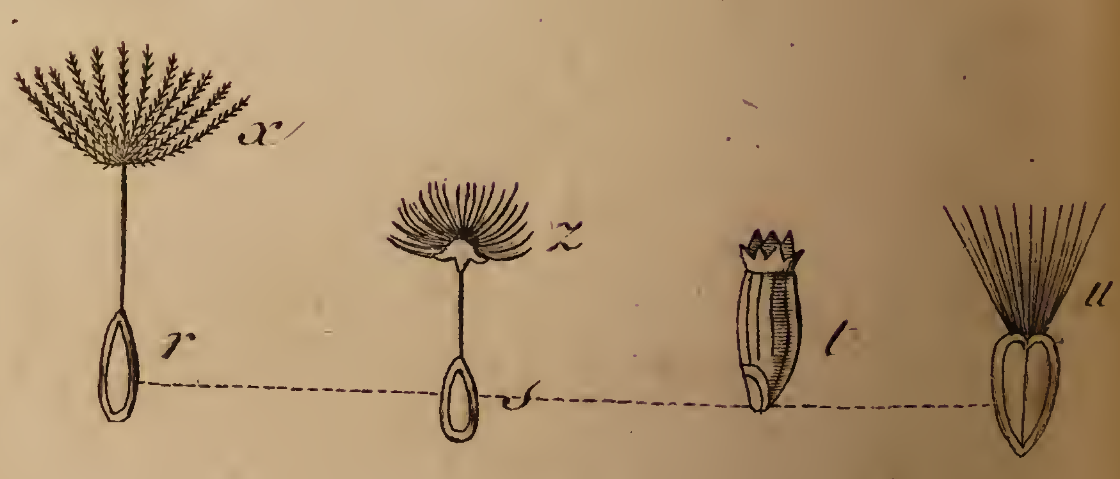


footſtalk without any of the borders adhering to it, as at *f.*

A coherent leaf *(folia connata)* is where the baſe of two oppoſite leaves unite, and appear to be but one leaf, ſee *a*, when the baſe of the leaf is like a cylinder, and ſurrounds the ſtalk or branch like a ſheath as at *b*, it is termed (*vaginans*).

IV. The ſituation of the leaves *(ſitus)* depends upon the poſition of each with regard to the others, ſee fig. 21.

A jointed leaf *(folia articulata)* is one whoſe ſummits are joined to the other, ſee fig. 20.

Starry leaves *(folia ſtellata)* are ſuch as have ſix or more ſmall leaves ſurrounding the ſtalk which are pointed like ſtars as at *a.*

When there are but three of theſe leaves, they are termed *ternata*; when four as at *b*, *quaterna*; when five, *quina*, *&c.*

When two leaves are placed oppoſite on the ſtalk as at *c*, *c*, it is termed *(folia oppoſita)* and when they are ranged one above the other as at *d*, *d*, *folia alternata*, alternate leaves.

When the leaves are ſituated looſely without order upon the branches as at *e*, they are termed *(folia ſparſa)*, ſcattered leaves.

When there are many leaves ſet upon a common footſtalk, which are ſo cloſely placed as that their ſituation cannot be eaſily diſcovered, they are termed (*conferta*) cluſtered, as at letter *f*.

When they are ranged like the tiles of a houſe, or ſcales of fiſh; *imbricata*, as at *g*.

But when the leaves are placed in cluſters, proceeding from the ſame point as at *h*, *faſciculata*, cluſtered or bundled leaves.

Of the parts of the fructification.

Theſe parts are either general or particular, the general are two, *viz.* the flower and the fruit. The particular are ſubdivided into the eight following parts, *viz.* the empalement or cup (*calyce*), the flower-leaves, or petals, (*corolla*), the ſtamina, (*filamenta*), the ſummits (*anthera*), the pointal or ſtyle (*ſtylus*), the pericarpium or fleſhy ſubſtance which ſurrounds the ſeeds, the ſeed (*ſemina*), and the receptacle or placenta. The five firſt belong to the flower, and the three laſt to the fruit.

The parts of the flower, plate IV.

I. The cup of the flower (*calyx*) is that which incloſes or ſuſtains the other parts; theſe are divided into the ſeven following ſorts, the *perianthium*, the *involucrum*, the *ſpatha*, *gluma*, *amentum* or *julus*, *calyptra*, and *volva*.

The *perianthium* is the moſt common ſort of flower cup; it is often compoſed of many parts, or when it is of one part or piece, it is divided or cut half way into more or leſs parts, this always ſurrounds the flower.

The *involucrum* or outer cover embraces many flowers, which are collected together and have each their proper *perianthium*. They are diſpoſed in form of rays, and are ſometimes coloured, ſee fig. 1. *a*, *a*, *a*. This is often met with in the ſecond order of *Linnæus*'s fifth claſs.

The *ſpatha* or ſheath is a particular ſort of cover to one or ſeveral flowers, which ſeldom are provided with any particular *perianthium*, it conſiſts of a membrane faſtened to the ſtalk, and is of different figures and conſiſtence, ſee fig. 2. *b*, *b*, *b*.

It is ſometimes compoſed of two pieces, as at fig. 2. *c*, *c*, this often occurs in *Linnæus*'s I. III. VI. and XX. claſs.

Gluma or chaff, is a ſort of cover only belonging to the corns and graſſes, theſe are compoſed of two or three membranaceous valves, as at fig. 3. *d*, *d*, which are often tranſparent on their borders.

A julus or katkin (*amentum*) is a maſs of male or female flowers faſtened to an axis in form of a rope, being covered with ſmall ſcales which ſerve for calyces, ſee fig. 4. theſe occur frequently in *Linnæus*'s twenty firſt claſs.

The coif (*calyptra*) is a thin membranaceous cover of a conick form, which covers the parts of fructification, and is often met with in many kinds of moſs on the top of the flowers.

The purſe (*volva*) is a thick ſort of covering which incloſes ſeveral of the muſhroom tribe, and opens lengthways to let them out.

II. The petal or flower leaf (*corolla*) is that which immediately ſurrounds the parts of generation; there are two ſorts of theſe, the petal and the nectarium. When it is of one piece, it is called (*monopetalous*) and when it is of many pieces, *polypetalous*.

The flower leaf, or petal, is generally diſtinguiſhed by the beauty of its colour, ſee *e*, *e*, *e*, fig. 5. When this is of one piece, it is diſtinguiſhed by the tube (*tubus*) *h*, and the limb or border (*limbus*) *g*, when the flower is of many petals, each are diſtinguiſhed by their tail (*unguis*) *l*, and the blade (*lamina*) *i*.

The nectarium is that part of the corolla, which is deſtined to contain the honey or ſweet juice of the flower, and is of different figures, as a tube, a ſcale, a pimple, or tubercle, ſee *f*, *f*, *f*, fig. 5.

A floret (*corollula tabulata*) conſiſts of one piece formed in a kind of tube or bell ſhape, cut at the top into four or five parts which open and turn backward, ſee fig. 9.

A half floret (*corollula ligulata*) conſiſts of a flat narrow limb or tail turning outward, whoſe ſummit is either intire or indented in three or five points, ſee fig. 10.

III. The ſtamen is the male part of generation in flowers, and is compoſed of two parts, the filament and the ſummit.

The filament (*filamentum*) ſerves to ſuſtain the ſummit or apex, this is ſometimes in form of a thread, and at others it is awl-ſhaped.

The ſummit (*anthera*), or apex, is the eſſential part of the ſtamina, or the male organ of generation; it conſiſts of a little bag of one or more cavities, which is commonly faſtened to the point of the filament, and contains the male farina.

IV. The pointal (*piſtillum*) includes the female parts of generation in flowers, which is compoſed of the germ (*germen*), the ſtyle (*ſtylus*), and the ſtigma.

The germ incloſes and defends the embryons of the ſeeds, and is properly the matrix of the plants.

The ſtyle ſits upon the germ and ſuſtains the ſtigma, but there are ſome flowers which have no ſtyle.

The ſtigma is the female organ of generation, and is of different figures, it is generally ſituated upon the extremity of the ſtyle, and when there is no ſtyle it ſits upon the germ.

The Parts of Fruit.

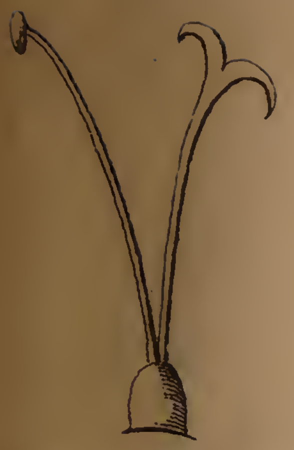
The (*pericarpium*) is formed of the germ which enlarges and incloſes the ſeeds, ſee *m*, *n*, fig. 6. it is divided into eight ſpecies, the capſule, the ſhell, the pod, the huſk, the nut, the apple, the berry, and the cone.

The capſule is compoſed of many dry elaſtick cells, which when the ſeeds are ripe generally open at the top; when it has but one cell, it is called *unilocularis*, if two *bilocularis*, or if ſeveral *multilocularis*.

The ſhell (*conceptaculum*) is different from a capſule of one cell, in the cover being ſofter and not ſo rough, opening lengthways on one ſide, and the ſeeds are not faſtened to it.

The pod (*ſiliqua*) fig. 7. is compoſed of two lids, *o*, *o*, which open from the baſe toward the point, ſeparated by a diaphragm or membraneous partition, to which the ſeeds are faſtened by an umbilical cord.

A legu-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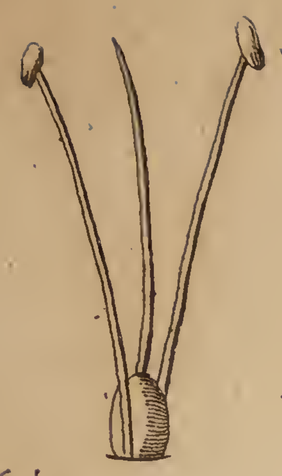
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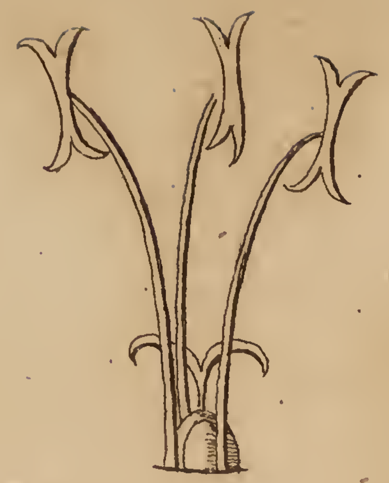
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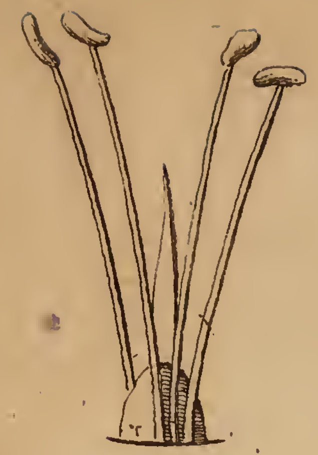
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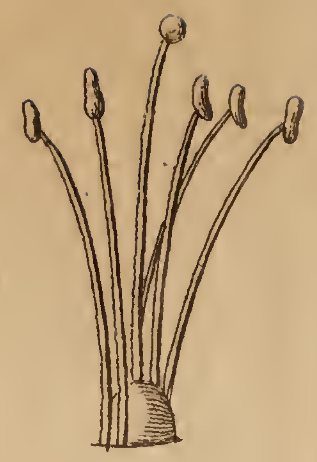
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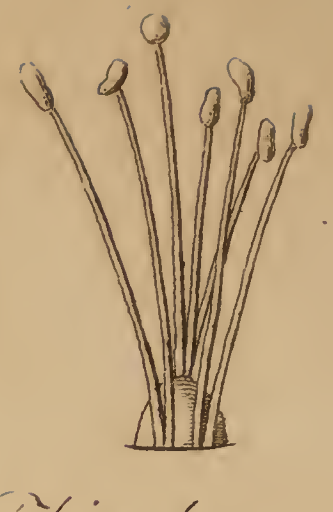
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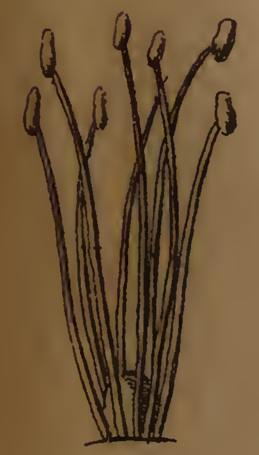
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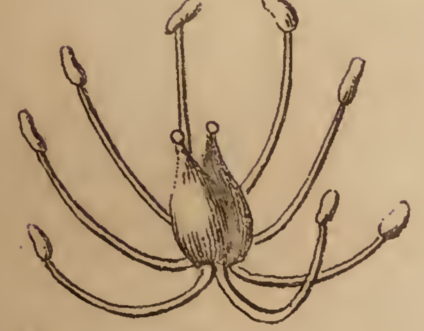
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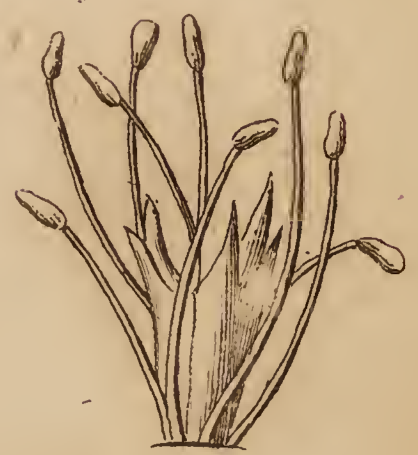
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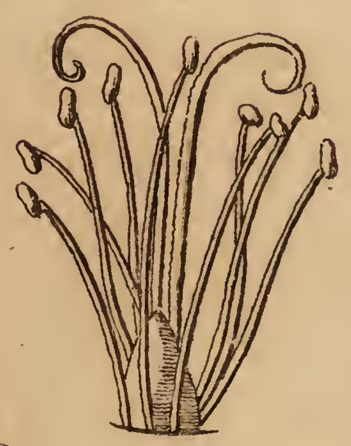
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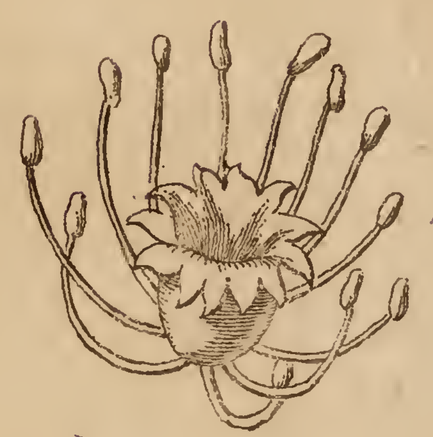
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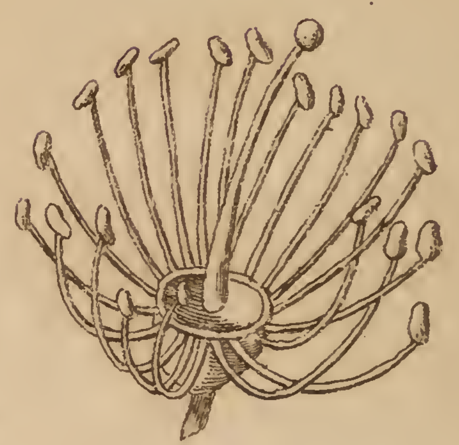
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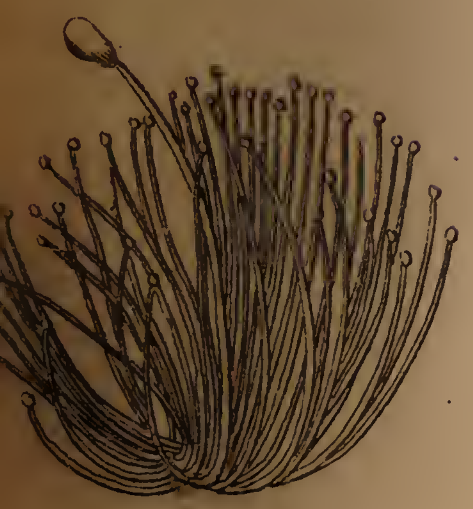
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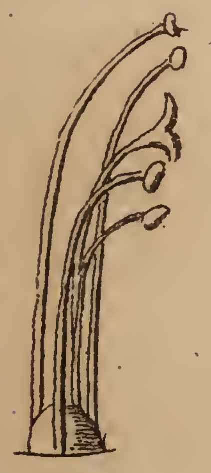
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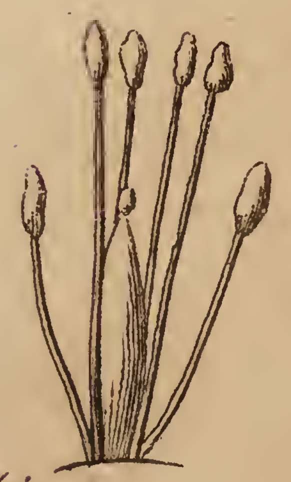
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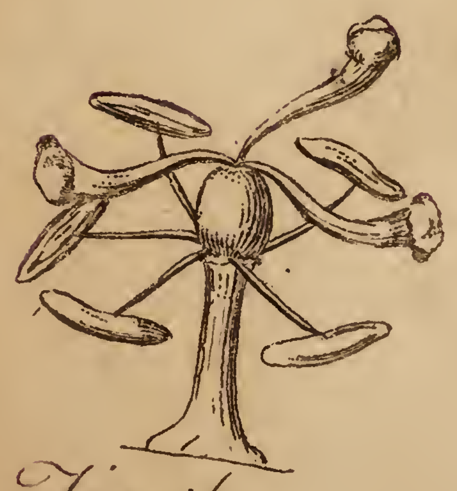
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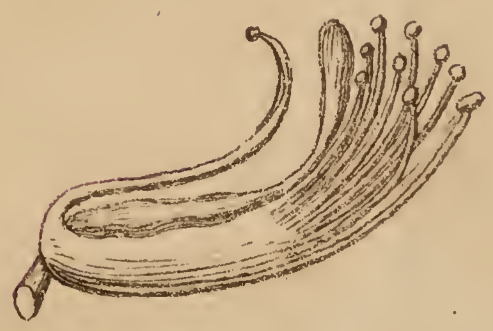
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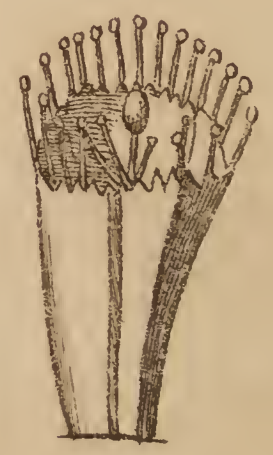
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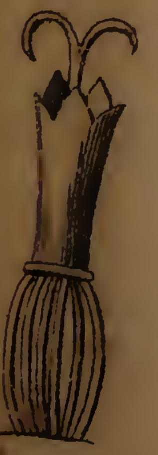
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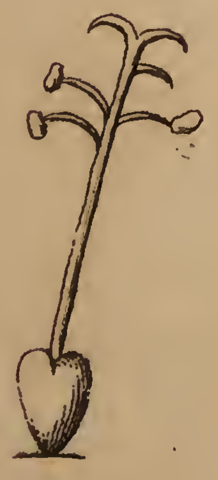
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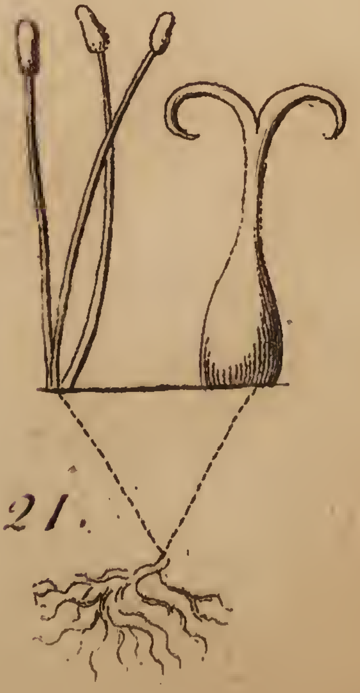
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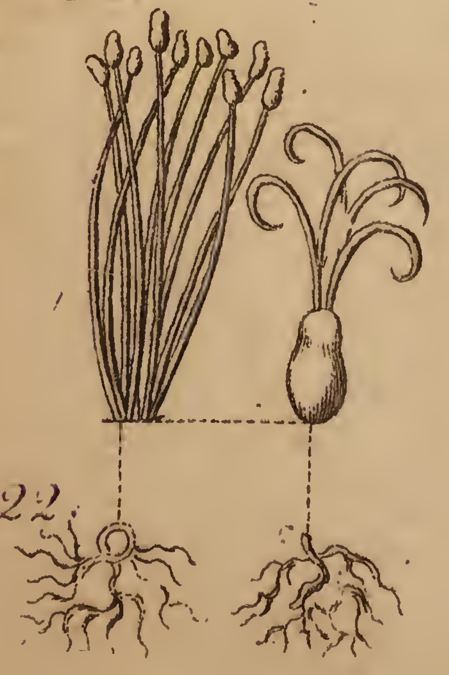
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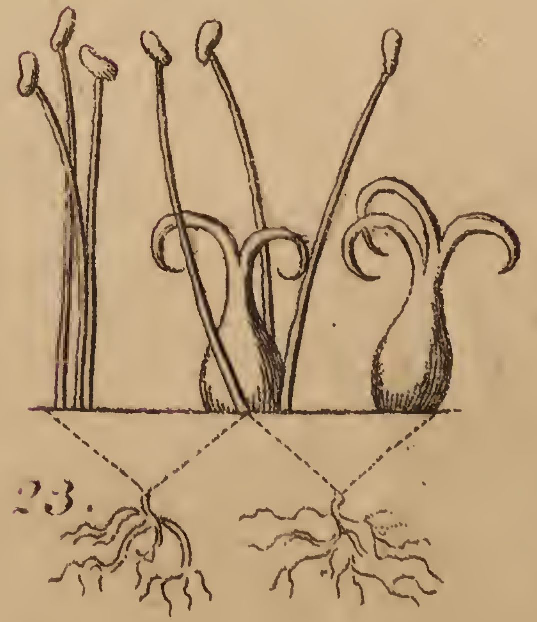
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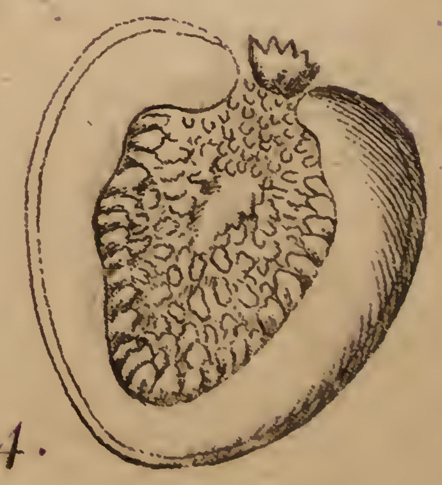


Fig. 24.

A leguminous pod (*legumen*) fig. 8. is an oblong cover of two ſhells joined above and below by a longitudinal ſuture, the ſeeds, *q*, *q*, are faſtened alternately to the upper border of each ſhell. Moſt of the pulſe are of this kind.

A plum (*drupa*) is a fruit compoſed of a fleſhy ſoft pulp incloſing a nut or ſtone in the middle.

A berry (*bacca*) incloſes many naked ſeeds in the middle of a ſucculent pulp.

An apple (*pomum*) is a fruit compoſed of a ſolid fleſhy pulp, in the middle of which are little cells with membranaceous covers in which the kernels or ſeeds are incloſed.

A cone (*ſtrobilus*) is a hard dry fruit, generally of a conical form, compoſed of many ſcales lying over each other like the tiles of an houſe, or the ſcales of fiſh.

VI. Seeds are alſo diſtinguiſhed into two ſorts, *viz.* nuts and grains or ſeeds.

The nut is a fruit with a hard ſhell, incloſing the true ſeed.

The ſeed (*ſemen*) is of all ſorts of figures, and is that part which vegetates and produces a plant of the ſame kind, with that from which it was taken; the ſeeds are ſometimes adorned with a crown.

The crown (*corona*) is either ſimple as at fig. 11. *t*, or tufted, as at fig. 10 and 11. *x*, *z*, *u*. When the down or tuft ſits cloſe upon the ſeed, without any footſtalk, or ſupport as at *u*, it is termed (*ſeſſilis*); but if it has ſupports, as at *r*, *x*, *s*, *z*, (*ſtipite inſidens*), each of theſe tufts are again divided into ſimple and branching, the ſimple, *u*, *x*, is compoſed of ſingle rays; and the branching, *u*, *x*, fig. 10 and 11, of bearded or feathered plumes.

The receptacle (*receptaculum*) is the placenta upon which is placed the flower, or fruit, or both together, and is of different figures.

AN EXPLANATION OF THE CLASSES.

Plate V.

Plants have flowers viſible or almoſt inviſible, the viſible flowers are either hermaphrodite, that is to ſay, they are each furniſhed with ſtamina and pointals; or of one ſex, either all male, when they have only ſtamina and no pointals, or all female, when they have pointals without ſtamina.

The ſtamina are either detached from each other, or united together by one of their parts, as alſo ſometimes with the pointal.

The ſtamina are not of equal length, or there are conſtantly a certain number which are ſhorter than the reſt.

The claſſes of plants which are eſtabliſhed upon the principles of the ſexes, are diſtinguiſhed according to the number, proportion, and the ſituation of the ſtamina in their flowers.

The plants which have hermaphrodite flowers.

Fig. 1. (*Monandria*) with one ſtamen.
Fig. 2. (*Diandria*) two ſtamina.
Fig. 3. (*Triandria*) three ſtamina.
Fig. 4. (*Tetrandria*) four ſtamina.
Fig. 5. (*Pentandria*) five ſtamina.
Fig. 6. (*Hexandria*) ſix ſtamina.
Fig. 7. (*Heptandria*) ſeven ſtamina.
Fig. 8. (*Octandria*) eight ſtamina.
Fig. 9. (*Enneandria*) nine ſtamina.
Fig. 10. (*Decandria*) ten ſtamina.
Fig. 11. (*Dodecandria*) twelve ſtamina.
Fig. 12. (*Icoſandria*) when there are more than twelve, and theſe are faſtened to the interior part of the flower cup, and not to the receptaculum.
Fig. 13. (*Polyandria*) when there are more than twelve, which are faſtened to the receptaculum.

The plants whoſe flowers have two ſtamina ſhorter than the other, are diſtinguiſhed in the following manner.

Fig. 14. (*Didynamia*) theſe flowers have two long and two ſhorter ſtamina.

Fig. 15. (*Tetradynamia*) theſe flowers have four long and two ſhorter ſtamina.

Thoſe plants whoſe flowers have their ſtamina united together, or with the pointal, are diſtinguiſhed in the following manner.

Fig. 16. (*Monadelphia*) theſe have all their ſtamina united by their tails into one body.

Fig. 17. (*Diadelphia*) Theſe have all their ſtamina united by their tails into two bodies.

Fig. 18. (*Polyadelphia*) theſe have all their ſtamina united by their tails into three or more bodies.

Fig. 19. (*Syngeneſia*) theſe have all their ſtamina united by their ſummits in form of a cylinder.

Fig. 20. (*Gynandria*) the ſtamina of theſe ſit upon the pointal, and not upon the receptaculum.

Thoſe plants whoſe flowers are of different ſexes are thus diſtinguiſhed.

Fig. 21. (*Monœcia*) the plants of this claſs have male and female flowers upon the ſame individual.

Fig. 22. (*Diœcia*) theſe have male and female flowers upon different plants.

Fig. 23. (*Polygamia*) theſe have hermaphrodite flowers, with flowers of one ſex, either male or female upon the ſame individual.

Thoſe plants whoſe flowers are incloſed in the fruit, or are ſo ſmall as not to be ſeen by the naked eye, are included in the 24th claſs, intituled *Cryptogamia*, ſee Fig. 24.

AN EXPLANATION OF THE ORDERS.

The orders or ſubdiviſions of the claſſes are eſtabliſhed upon the pointals, as the claſſes are upon the ſtamina, the number of pointals taken to the baſe of the ſtyle, and when there is no ſtyle, the ſtigmas are counted.

The orders of the 13 firſt claſſes are,

1. (*Monogynia*) flowers with one pointal.
2. (*Digynia*) thoſe with two pointals.
3. (*Trigynia*) with three pointals.
4. (*Tetragynia*) with four, *&c.*

When the flower has a great number of pointals, *Polyginia.*

The 14th Claſs (*Didynamia*) is divided into the two following orders.

1. (*Gymnoſpermia*) theſe have four naked ſeeds ſucceeding each flower ſitting in the cup.

2. (*Angioſpermia*) the ſeeds of theſe are incloſed in a cover.

The 15th claſs, (*Tetradynamia*) is alſo divided into two orders.

1. (*Siliculoſa*) ſhort poded, the *pericarpium* or cover is ſuborbicular, and garniſhed with a ſtyle of the ſame length.

2. (*Siliquoſa*) long poded, the *pericarpium* of this is long, with a ſtyle ſcarcely ſeen.

The 19th claſs (*Syngeneſia*) is divided into the five following orders.

(*Polygamia*) is a flower compoſed of many florets.

1. (*Polygamia æqualis*) is a flower compoſed of hermaphrodite florets, in the diſk and the circumference.

2. (*Polygamia ſuperflua*) the flowers of this order are compoſed of hermaphrodite florets in the diſk, and of female in their circumference.

3. (*Polygamia fruſtranea*) have flowers compoſed of hermaphrodite florets in the diſk, and of neutral in their circumference.

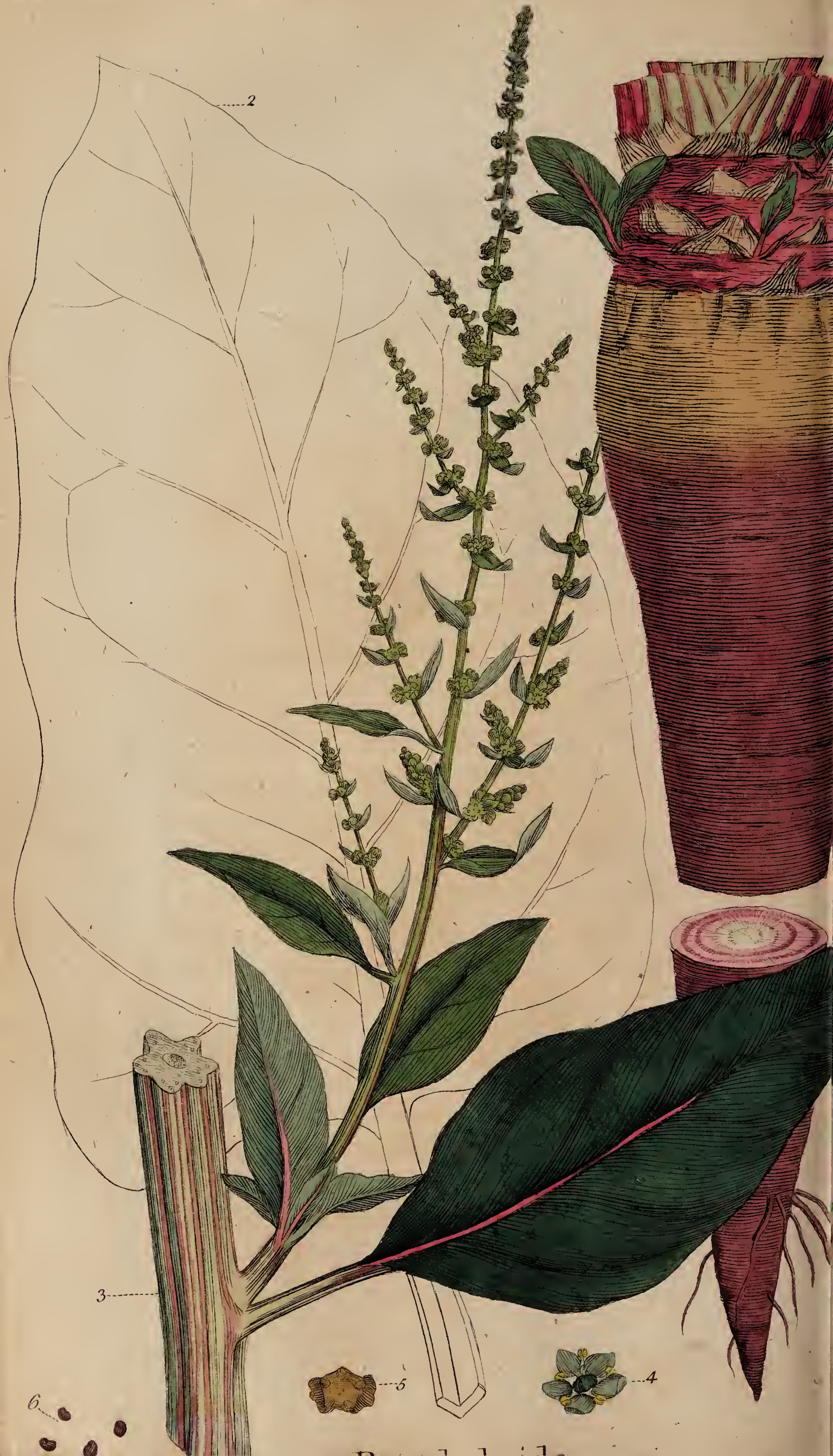
4. (*Polygamia neceſſaria*) the flowers of this order are compoſed of male florets in their diſk, and of female in their circumference.

5. (*Monogamia*) is a flower which is compoſed of ſimple florets.

The ſixteenth claſs (*Monodelphia*), the ſeventeenth (*Diadelphia*), the eighteenth (*Polyadelphia*), the twentieth (*Gynandria*), the twenty-firſt (*Monoœcia*), the twenty-ſecond (*Dioœcia*), and the twenty-third (*Polygamia*), eſtabliſh their orders upon the claſſical characters of thoſe of the preceding claſſes.

The laſt claſs (*Cryptogamia*), in ſhort is divided into as many orders, as the families which compoſe it.

FINIS.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